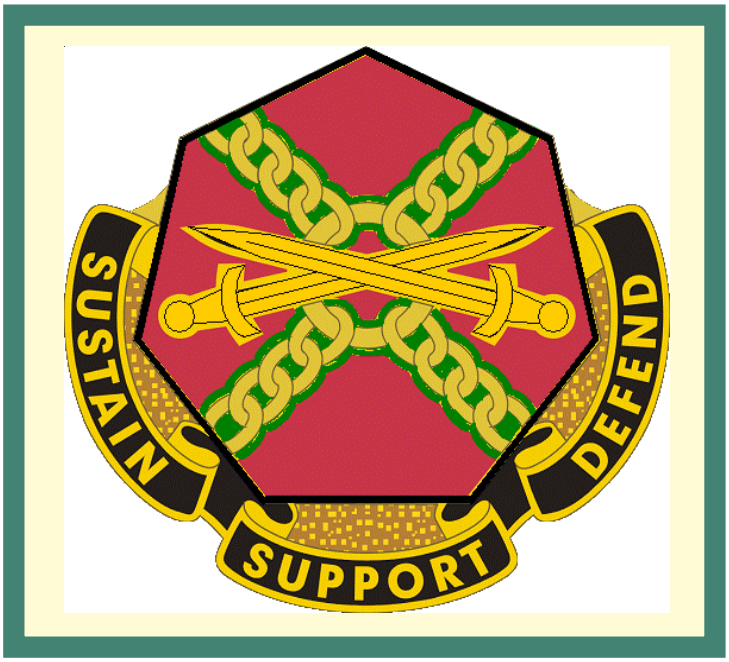
INSTALLATION ACTION PLAN
For
REDSTONE ARSENAL



FY05 as of March 2004

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year restoration program for an installation. The plan will define Installation Restoration Program (IRP) requirements and propose a comprehensive approach and associated costs to conduct future investigations and remedial actions at each Solid Waste Management Unit (SWMU) at the installation and other areas of concern.

In an effort to coordinate planning information between the IRP manager, major army commands (MACOMs), installations, executing agencies, regulatory agencies, and the public, an IAP has been completed for the Redstone Arsenal (RSA). The IAP is used to track requirements, schedules and tentative budgets for all major Army installation restoration programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change during the document's annual review. Under current project funding, all remedies will be in place at RSA by the end of 2013.

The following agencies contributed to the formulation and completion of this Installation Action Plan:

Army Environmental Center
Alabama Department of Environmental Management
Environmental Protection Agency, Region 4
Redstone Installation Redstone Program
Engineering & Environment Inc.
SMI
Corps of Engineers, Savannah District
Shaw E&I

Acronyms & Abbreviations

ABMA	Army Ballistic Missile Agency
ADEM	Alabama Department of Environmental Management
ADR	**USED in the Programmatic Approach (page 8)**
AEC	(United States) Army Environmental Command
AEDB-R	Army Environmental Database - Restoration
AEHA	(United States) Army Environmental Hygiene Agency
AMCOM	Army Aviation and Missile Command
AOC	Area Of Concern
ARBCA	Alabama Risk-Based Corrective Action
ARAR	Applicable or Relevant and Appropriate Requirements
AST	Above Ground Storage Tank
ATCOM	Aviation and Troop Command
ATSDR	Agency for Toxic Substances and Disease Registry
Bldg	building
BRAC	Base Realignment and Closure
BTEX	Benzene, Toluene, Ethyl Benzene, Xylene
C&D	Construction and Demolition
CAIS	Chemical Agent Identification Set
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CG	phosgene
CHPPM	(United States Army) Center for Health Promotion and Preventive Medicine
CN	tear gas
COC	Contaminants of Concern
COPC	Chemical of Potential Concern
CSM	Chemical Surety Material
CTC	Cost-To-Complete
CWM	Chemical Warfare Material
cy	cubic yards
DD	Decision Document
DDD/DDE/DDT	type of pesticide and its breakdown products
DERP	Defense Environmental Restoration Program (now called ER,A)
D-NAPL	Dense Non-Aqueous Phase Liquid
DM	vomit gas
DOT	Department of Transportation
DPG	Defense Program Guidance
DRMO	Defense Reutilization and Marketing Office
DSERTS	Defense Site Environmental Restoration Tracking System (now called AEDB-R)
EECA	Engineered Evaluation/Cost Analysis
EOD	Explosive Ordnance Division
EPA	(United States) Environmental Protection Agency
ER,A	Environmental Restoration, Army (formally called DERA)
ESE	Environmental Science & Engineering, Inc.
FFA	Federal Facilities Agreement
FFSRA	Federal Facility Site Remediation Agreement
FWEC	Foster Wheeler Environmental Corporation
FS	Feasibility Study
FY	Fiscal Year
G&M	Geraghty & Miller
GCD	Gulf Chemical Depot
GW	Groundwater

Acronyms & Abbreviations

H	mustard
HHRA	Human Health Risk Assessment
HRC	Hydrogen Releasing Compound
HVA	Huntsville Arsenal
IAP	Installation Action Plan
ICF	Incindary Bomb Filled
ICF KE	ICF Kaiser Engineers, Inc.
IRA	Interim Remedial Action
IRFA	Interim RCRA Facility Assessment
IRP	Installation Restoration Program
ISP	International Specialty Products, Inc.
K	$1,000
L	lewisite
LDR	**USED in RSA-011**
LF	Landfill
LTM	Long Term Monitoring
LUC	Land Use Controls
MACOM	Major Army Command
MCL	Maximum Contaminant Level
MICOM	Missle Command
MNA	Monitored Natural Attenuation
MOA	Memorandum of Agreement
MSFC	Marshall Space Flight Center
MTBE	Gasoline additive
mg/Kg	Milligrams per kilogram
mg/L	milligrams per Liter
NAPL	Non-Aqueous Plase Liquid
NASA	National Aeromautics and Space Administration
NE	Not Evaluated
NFA	No Further Action
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NTCRA	Non-Time Critical Removal Action
OB/OD	Open Burning/Open Detonation
O & M	Operation & Maintenance
OE	Ordnance & Explosives
OU	Operable Unit
P & E	Propellant and Explosive
P & T	Pump and Treat
PAH	Polyaromatic hydrocarbons
Parsons	Parsons Engineering-Science, Inc.
PA	Preliminary Assessment
PAH	Polyaromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCE	Perchloroethylene
PELA	P.E. LaMoreaux and Associates, Inc.
Pb	Lead
POL	Petroleum, Oil & Lubricants
PP	Proposed Plan
ppb	Parts Per Billion

Acronyms & Abbreviations

ppm	Parts Per Million
PRP	Potentially Responsible Party
PTSM	Potential Threat Source Material
R&D	Research & Development
RA	Remedial Action
RAB	Restoration Advisory Board
RACER	Remedial Action Cost Engineering & Requirements System
RARE Facility	Redstone Arsenal Rocket Engine Facility
RA(O)	Remedial Action (Operation)
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RCRA-CA	RCRA Corrective Action
RCRA-Op	RCRA Operating
RD	Remedial Design
REM	Removal
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
ROP	Redstone Ordnance Plant
RR	Range Rule
RRSE	Relative Risk Site Evaluation
RSA	Redstone Arsenal
RUST E&I	Rust Environmental & Infrastructure
SAIC	Scientific Applications International Corporation
sf	square feet
SI	Site Inspection
STP	Sewage Treatment Plant
STS	Space Transport System
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TA	Test Area
TAL	Target Analyte List
TC	thionyl chloride
TCA	Trichloroethane
TCRA	Time Critical Removal Action
TCE	Trichloroethylene
TI	Technical Impractiability
TMDE	Test, Measure and Diagnostic Equipment
TNT	type of explosive
TPH	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
TVA	Tennessee Valley Authority
ug/Kg	micrograms per kilogram
ug/L	micrograms per liter
USATHMA	United States Army Toxic and Hazardous Material Agency (replaced by AEC)
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds
WP	white phosphorous

Conversions

SITE	OU	GROUP	DESCRIPTION
MSFC-002	OU-18	CERCLA	INACTIVE ABANDONED DRUM DISPOSAL SITE
MSFC-003	OU-18	CERCLA	INACTIVE OLD BONE YARD DISPOSAL SITE
MSFC-027	OU-05	CERCLA	INACTIVE M-1 WASTE ACCUMULATION AREA
MSFC-034	OU-18	CERCLA	INACTIVE MECHANICAL ROOM SUMP, BLDG 4481
MSFC-035		RC	INACTIVE SUMP/TILED DRAIN FIELD-EAST TA
MSFC-053	OU-18	CERCLA	FORMER PROPELLANT STORAGE AREA
MSFC-055	OU-18	RC	DISMANTLED STAUFFER CHEM.MFG. PLANT SITE (transfered to NASA)
MSFC-060	OU-18	RC	INACTIVE DELUGE WATER DRAINAGE SYS.
MSFC-065	OU-18	RC	SURFACE DRAINAGE DITCH
MSFC-074	OU-06	CERCLA	INACTIVE DISPOSAL SITE
MSFC-077	OU-18	CERCLA	INACTIVE OPEN BURNING/DISPOSAL PITS
MSFC-082	OU-18	CERCLA	INACTIVE CHEM.MUNTS.DEMIL/DISP. TRENCHES
MSFC-D	OU-18	CERCLA	FUEL OIL STORAGE TANKS CONTAINMENT BERM
RSA-001		RC	FOX ARMY COMMUNITY HOSPITAL INCINERATOR
RSA-002		RCRA-CA	IN-GROUND OIL/WATER SEPARATOR, BLDG.3338
RSA-003		RCRA-CA	IN-GROUND OIL/WATER SEPARATOR, BLDG.3617
RSA-004		RCRA-CA	IN-GROUND OIL/WATER SEPARATOR & WASHRACK
RSA-005	OU-02	CERCLA	INACTIVE WASTE ACCUMULATION AREA
RSA-006		RCRA-CA	PAINT SHOP & SUMPS BLDG 3634 MOTOR POOL
RSA-007		RC	HAZARDOUS WASTE STORAGE AREA, BLDG. 3775
RSA-008	OU-02	RCRA	INACTIVE SEWAGE TREATMENT PLANT 4
RSA-009	OU-18	RCRA	INACTIVE SEWAGE TREATMENT PLANT 3
RSA-010	OU-06	CERCLA	CLOSED UNLINED SANITARY LANDFILL
RSA-011	OU-10	CERCLA	INACTIVE SEWAGE TREATMENT PLANT 1
RSA-012		RCRA-CA	ACTIVE OPEN BURN PANS
RSA-013	OU-14	CERCLA	UNLINED INACTIVE OPEN BURN PADS
RSA-014	OU-14	CERCLA	UNLINED INACTIVE BURN TRENCHES
RSA-015		RCRA-Op	HAZARDOUS WASTE STORAGE IGLOO, NO. 1
RSA-016		RCRA-Op	HAZARDOUS WASTE STORAGE IGLOO, NO. 2
RSA-017		RCRA-Op	HAZARDOUS WASTE STORAGE IGLOO, NO. 3
RSA-018		RCRA-Op	HAZARDOUS WASTE STORAGE IGLOO, NO. 4
RSA-019		RCRA-Op	HAZARDOUS WASTE STORAGE IGLOO, NO. 5
RSA-020		RCRA-Op	HAZARDOUS WASTE STORAGE IGLOO, NO. 6
RSA-021		RCRA-Op	HAZARDOUS WASTE STORAGE IGLOO, NO. 7
RSA-022		RCRA-Op	HAZARDOUS WASTE STORAGE IGLOO, NO. 8
RSA-023		RCRA-Op	HAZARDOUS WASTE STORAGE IGLOO, NO. 9
RSA-024		RC	HAZ. WASTE VACANT STORAGE IGLOO, NO. 10
RSA-025		RC	HAZ. WASTE VACANT STORAGE IGLOO, NO. 11
RSA-026		RC	HAZ. WASTE VACANT STORAGE IGLOO, NO. 12
RSA-027		RC	HAZ. WASTE VACANT STORAGE IGLOO, NO. 13
RSA-028		RCRA-CA	IN-GROUND OIL/WATER SEPARATOR, 5693 AREA
RSA-029		RC	REDSTONE ARSENAL SANITARY SEWER SYSTEM
RSA-030		RCRA-CA	CENTRAL OIL/WATER SEPARATOR
RSA-031		RCRA-CA	CENTRAL OIL/WATER SEPARATOR STORAGE TANK
RSA-032	OU-15	CERCLA	INACTIVE SCRAP METAL STORAGE AREA
RSA-033		RCRA-CA	PLATING ROOM FLOOR DRAINS, BLDG. 5432
RSA-034		RCRA-CA	WASTE AVIATION FUEL TEMP. STORAGE AREA
RSA-035		RCRA-CA	IN-GROUND OIL/WATER SEPARATOR, BLDG.4812
RSA-036		RCRA-CA	IN-GROUND OIL/WATER SEPARATOR, BLDG.4832

RSA-037		RCRA-CA	UNDERGROUND USED OIL STORAGE TANK, #7846
RSA-038		RC	ABOVE GROUND GASOLINE STORAGE TANK, 3240D
RSA-039		RC	UNDERGROUND USED OIL STORAGE TANK, #3338
RSA-040		RC	UNDERGROUND USED OIL STORAGE TANK, #3617
RSA-041		RC	UNDERGROUND USED OIL STORAGE TANK,#3636
RSA-042		RCRA-CA	OW SEPARATOR USED OIL STORAGE TANK #4812
RSA-043		RC	UNDERGROUND USED OIL STORAGE TANK,#5435A
RSA-044		RCRA-CA	UNDERGROUND USED OIL STORAGE TANK,#5435B
RSA-045	OU-02	CERCLA	REMOVED UNDERGROUND STORAGE TANK SITE
RSA-046	OU-12	CERCLA	INACTIVE CHEMICAL MUNITION TEST SITE
RSA-047	OU-03	RC	INACTIVE CHEMICAL TRAINING FACILITY
RSA-048	OU-02	CERCLA	INACTIVE CLOSED SANITARY LANDFILL
RSA-049	OU-05	CERCLA	CAPPED ARSENIC WASTE LAGOONS-WEST
RSA-050	OU-17	CERCLA	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA
RSA-051	OU-17	CERCLA	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA
RSA-052	OU-08	CERCLA	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA
RSA-053	OU-06	CERCLA	INACTIVE SANITARY & INDUSTRIAL LANDFILL
RSA-054	OU-06	CERCLA	INACTIVE SANITARY & INDUSTRIAL LANDFILL
RSA-055	OU-06	RC	INACTIVE SANITARY & INDUSTRIAL LANDFILL (combined with RSA-54)
RSA-056	OU-06	CERCLA	CAPPED ARSENIC WASTE PONDS-SOUTH
RSA-057	OU-06	CERCLA	INACTIVE ARSENIC WASTE LAGOON-EAST
RSA-058	OU-07	CERCLA	INACTIVE RUBBLE FILL & WASTE PILE
RSA-059	OU-06	CERCLA	INACTIVE CLOSED CONSTRUCTION RUBBLE FILL
RSA-060	OU-06	CERCLA	INACTIVE SANITARY & INDUSTRIAL LANDFILL
RSA-061	OU-08	CERCLA	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA
RSA-062	OU-08	RC	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA (combined with RSA-61)
RSA-063	OU-17	CERCLA	INACTIVE CHEMICAL MUNITION STORAGE AREA
RSA-064	OU-12	CERCLA	INACTIVE MUNITION DEMIL & DISPOSAL AREA
RSA-065	OU-15	CERCLA	FORMER CHEMICAL DRUM STORAGE AREA
RSA-066	OU-15	CERCLA	INACTIVE ASH DISPOSAL SITE & DEMIL AREA
RSA-067	OU-15	CERCLA	FORMER CHEMICAL DRUM STORAGE AREA
RSA-068	OU-15	CERCLA	INACTIVE TOXIC CHEMICAL DISPOSAL AREA
RSA-069	OU-15	CERCLA	FORMER CHEMICAL DRUM STORAGE AREA
RSA-070	OU-15	RC	INACTIVE TOXIC CHEMICAL DISPOSAL AREA (combined with RSA-69)
RSA-071		RCRA-CA	HIGH EXPLOSIVE DROP TEST SITE AREA
RSA-072		RCRA-CA	MORTAR SHELL TEST SITE AREA
RSA-073		RCRA-CA	HIGH EXPLOSIVE IMPACT TEST SITE (WEST)
RSA-074		RCRA-CA	HIGH EXPLOSIVE IMPACT TEST SITE (EAST)
RSA-075		RC	INACTIVE SOLID WASTE INCINERATOR
RSA-076		RC	RDX/HMX FILTRATION UNIT 1, RARE (NORTH)
RSA-077		RC	RDX/HMX FILTRATION UNIT 2, RARE (SOUTH)
RSA-078		RC	RDX/HMX FILTER UNIT 1 SUMP-RARE (NORTH)
RSA-079		RC	RDX/HMX FILTER UNIT 2 SUMP-RARE (SOUTH)
RSA-080		RC	RDX/HMX SUSPENSION TRANSFER PAD/SUMP
RSA-081		RC	RDX/HMX FILT.UNITS CHARCOAL COLUMN DOLLY
RSA-082	OU-11	CERCLA	FORMER SPARGING UNIT SITE, BLDG. 7595
RSA-083	OU-10	CERCLA	INACTIVE SPRAY PAINT BOOTH SUMP
RSA-084	OU-10	RC	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-085		RCRA-CA	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-086		RCRA-CA	INACTIVE PROPELLANT WASTES STORAGE PAD

RSA-087	OU-10	CERCLA	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-088	OU-10	CERCLA	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-089	OU-10	CERCLA	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-090		RC	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-091		RC	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-092		RC	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-093		RC	RECLAIMED EMPTY DRUM STORAGE AREA
RSA-094	OU-10	CERCLA	CHLORINATED-SOLVENT DISTILLATION UNIT 1
RSA-095	OU-10	CERCLA	CHLORINATED-SOLVENT DISTILLATION UNIT 2
RSA-096	OU-10	CERCLA	CHLORINATED-SOLVENT DISTILLATION UNIT 3
RSA-097	OU-10	CERCLA	CHLORINATED-SOLVENT DISTILLATION UNIT 4
RSA-098	OU-10	CERCLA	CHLORINATED-SOLVENT DISTILLATION UNIT 5
RSA-099	OU-10	CERCLA	ABANDONED PLATING SHOP TANKS & SUMPS
RSA-100		RC	ABOVE GROUND WASTE OIL TANK, BLDG. 7630
RSA-101		RC	ENCAPSULATED DDT CONTAMINATED SOIL AREA
RSA-102		RC	DISMANTLED DDT MFG. PLANT SITE
RSA-103		RC	CLOSED INACTIVE DDT SETTLING LAGOON
RSA-104	OU-06	CERCLA	INACTIVE ISP WASTEWATER DISCHARGE DITCH
RSA-105		RC	INACTIVE CLOSED DDT DRAINAGE DITCHES
RSA-106		RC	ACTIVE DDT EARTHEN RETENTION DAMS
RSA-107		RC	CLOSED DDT CONTAM.SOILS/DEBRIS LANDFILL
RSA-108	OU-16	RC	TEST RANGE 4 MISSILE IMPACT SITE
RSA-109	OU-08	CERCLA	FORMER CHEMICAL MUNITIONS STAGING AREA
RSA-110	OU-15	CERCLA	FORMER DRUM STORAGE/CONSTRUCTION DEBRIS
RSA-111		RC	CONSTRUCTION DEBRIS
RSA-112	OU-07	CERCLA	FORMER DEMILITARIZATION & DISPOSAL SITE
RSA-113	OU-07	CERCLA	INACTIVE DISPOSAL TRENCHES & BURN PITS
RSA-114	OU-04	CERCLA	INACTIVE MADKIN MOUNTAIN ROCK QUARRY
RSA-115	OU-13	CERCLA	INACTIVE EAST SIDE BLOWDOWN LAGOON
RSA-116	OU-13	RCRA	SOUTH SIDE BLOWDOWN LAGOON
RSA-117	OU-06	CERCLA	FORMER LIQUID CAUSTIC MFG. PLANT
RSA-118	OU-06	CERCLA	INACTIVE ISP INDUSTRIAL DISCHARGE LAGOON
RSA-119		RC	ISP INTERNATIONAL MANUFACTURING PLANT
RSA-120		RC	MATTHEWS CAVE AND RAVINE
RSA-121		RCRA-CA	PAINT SHOP/PAINT WASHOUT BOOTH-BLDG 4762
RSA-122	OU-06	CERCLA	DISMANTLED LEWISITE MFG. PLANTS SITE
RSA-123		RC	INACTIVE CEMENT PLANT SUMP
RSA-124		RC	DISMANTLED CALGON DDT-CONTAMINATED WTP
RSA-125		RCRA-CA	WASTE ACCUMULATION AREA, BLDG. 5477
RSA-126	OU-6	CERCLA	INACTIVE OPEN BURN TRENCH
RSA-127		RCRA-CA	PHOTO LAB WASTEWATER SUMP, BLDG. 5451
RSA-128	OU-7	RC	INACTIVE MUSTARD GAS DEMIL AREA
RSA-129	OU-7	CERCLA	FORMER BURN PAD & CAPPED WASHOUT PIT
RSA-130	OU-9	RC	INACTIVE PHOTOLAB SEPTIC TANK-BLDG.7345
RSA-131		RC	ACTIVE OPEN DETONATION AREA
RSA-132	OU-14	RC	DISMANTLED & REMOVED POPPING FURNACE
RSA-133	OU-14	RC	INACTIVE ROCKET WASHOUT RACK & SUMP
RSA-134	OU-7	CERCLA	INACTIVE DISPOSAL TRENCH & BURN PIT
RSA-135A-G		RC	1.1 PROPELLANT WASTE CAPTIVE SUMPS
RSA-135H	OU-11	CERCLA	INACTIVE SUMP FOR 1.1 PROPELLANT WASTES

RSA-135I-N		RC	1.1 PROPELLANT WASTE CAPTIVE SUMPS
RSA-136A-J		RC	1.1 PROPELLANT WASTE DRUM STORAGE PADS
RSA-137A-P		RC	1.3 PROPELLANT WASTE SUMPS AND CAPTIVE SUMPS
RSA-138A-L		RC	1.3 PROPELLANT WASTE DRUM STORAGE PADS
RSA-138M	OU-10	CERCLA	INACTIVE TEMPORARY STORAGE PAD, BLDG7722
RSA-138N-Q		RC	1.3 PROPELLANT WASTE DRUM STORAGE PADS
RSA-139	OU-06	CERCLA	CAPPED ARSENIC WASTE POND-NORTH
RSA-140	OU-12	CERCLA	INACTIVE DISPOSAL AREA NEAR T/S TOWER
RSA-141	OU-18	CERCLA	4.2 INCH MORTAR DISPOSAL SITE, BLDG 4656
RSA-142	OU-10	CERCLA	CHLORINATED-SOLVENT SPILL
RSA-143	OU-01	CERCLA	UNDERGROUND STORAGE TANK SPILL SITE
RSA-144	OU-11	CERCLA	CHLORINATED-SOLVENT DISTILLATION UNIT 6
RSA-145	GW-01	CERCLA	GROUNDWATER UNIT 01
RSA-146	GW-02	CERCLA	GROUNDWATER UNIT 02
RSA-147	GW-03	CERCLA	GROUNDWATER UNIT 03
RSA-148	GW-04	CERCLA	GROUNDWATER UNIT 04
RSA-149	GW-05	CERCLA	GROUNDWATER UNIT 05
RSA-150	GW-06	RC	GROUNDWATER UNIT 06
RSA-151	GW-07	CERCLA	GROUNDWATER UNIT 07
RSA-152	GW-08	CERCLA	GROUNDWATER UNIT 08
RSA-153	GW-09	RC	GROUNDWATER UNIT 09
RSA-154	GW-10	RC	GROUNDWATER UNIT 10
RSA-155	GW-11	RC	GROUNDWATER UNIT 11
RSA-156	GW-12	CERCLA	GROUNDWATER UNIT 12
RSA-157	GW-13	RC	GROUNDWATER UNIT 13
RSA-A	OU-11	CERCLA	INACTIVE PROPELLANT STORAGE WELLS
RSA-B	OU-11	RC	ABANDONED ARMY PROPELLANT MFG.BLDG 7598
RSA-C	OU-11	CERCLA	ABANDONED ARMY PROPELLANT MIXER BLDG.
RSA-D	OU-02	CERCLA	PAINT BOOTH & PAINT STORAGE SHED
RSA-E	OU-06	RCRA	FUEL OIL SPILL AT FUEL FARM-TANK 5693
RSA-F	OU-06	RCRA	FENCED OPEN STORAGE/LAYDOWN YARD

NOTES:
RC: Response Complete
RR: Range Rule

OPERABLE UNIT 1

Site	Description
RSA-143	UNDERGROUND STORAGE TANK SPILL SITE

OPERABLE UNIT 2

Sites	Description
RSA-D	PAINT BOOTH & PAINT STORAGE SHED
RSA-005	INACTIVE WASTE ACCUMULATION AREA
RSA-045	REMOVED UNDERGROUND STORAGE TANK SITE
RSA-048	INACTIVE CLOSED SANITARY LANDFILL

OPERABLE UNIT 3

Site	Description
RSA-047	INACTIVE CHEMICAL TRAINING FACILITY

OPERABLE UNIT 4

Site	Description
RSA-114	INACTIVE MADKIN MOUNTAIN ROCK QUARRY

OPERABLE UNIT 5

Sites	Description
MSFC-027	INACTIVE M-1 WASTE ACCUMULATION AREA
RSA-049	CAPPED ARSENIC WASTE LAGOONS-WEST

OPERABLE UNIT 6

Sites	Description
RSA-010	CLOSED UNLINED SANITARY LANDFILL
RSA-053	INACTIVE SANITARY & INDUSTRIAL LANDFILL
RSA-054	INACTIVE SANITARY & INDUSTRIAL LANDFILL
RSA-056	CAPPED ARSENIC WASTE PONDS-SOUTH
RSA-057	INACTIVE ARSENIC WASTE LAGOON-EAST
RSA-059	INACTIVE CLOSED CONSTRUCTION RUBBLE FILL
RSA-060	INACTIVE SANITARY & INDUSTRIAL LANDFILL
MSFC-074	INACTIVE DISPOSAL SITE
RSA-104	INACTIVE ISP WASTEWATER DISCHARGE DITCH
RSA-117	FORMER LIQUID CAUSTIC MFG. PLANT
RSA-118	INACTIVE ISP INDUSTRIAL DISCHARGE LAGOON
RSA-122	DISMANTLED LEWISITE MFG. PLANTS SITE
RSA-126	INACTIVE OPEN BURN TRENCH
RSA-139	CAPPED ARSENIC WASTE POND-NORTH

OPERABLE UNIT 7

Sites	Description
RSA-058	INACTIVE RUBBLE FILL & WASTE PILE
RSA-112	FORMER DEMILITARIZATION & DISPOSAL SITE
RSA-113	INACTIVE DISPOSAL TRENCHES & BURN PITS
RSA-129	FORMER BURNING PIT/ROCKET WASHOUT SITE
RSA-134	INACTIVE DISPOSAL TRENCH & BURN PIT

OPERABLE UNIT 8

Sites	Description
RSA-052	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA
RSA-061	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA
RSA-109	FORMER CHEMICAL MUNITIONS STAGING AREA

OPERABLE UNIT 9

Site	Description
RSA-130	INACTIVE PHOTOLAB SEPTIC TANK-BLDG.7345 (site RC)

OPERABLE UNIT 10

Sites	Description
RSA-011	INACTIVE SEWAGE TREATMENT PLANT 1
RSA-083	INACTIVE SPRAY PAINT BOOTH SUMP
RSA-084- RC	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-087	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-088	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-089	INACTIVE PROPELLANT WASTES STORAGE PAD
RSA-094	CHLORINATED-SOLVENT DISTILLATION UNIT 1
RSA-095	CHLORINATED-SOLVENT DISTILLATION UNIT 2
RSA-096	CHLORINATED-SOLVENT DISTILLATION UNIT 3
RSA-097	CHLORINATED-SOLVENT DISTILLATION UNIT 4
RSA-098	CHLORINATED-SOLVENT DISTILLATION UNIT 5
RSA-099	ABANDONED PLATING SHOP TANKS & SUMPS
RSA-138M	INACTIVE TEMPORARY STORAGE PAD, BLDG7722
RSA-142	CHLORINATED-SOLVENT SPILL

OPERABLE UNIT 11

Sites	Description
RSA-A	INACTIVE PROPELLANT STORAGE WELLS
RSA-B- RC	ABANDONED ARMY PROPELLANT MFG.BLDG 7598
RSA-C	ABANDONED ARMY PROPELLANT MIXER BLDG.
RSA-135H	INACTIVE SUMP FOR 1.1 PROPELLANT WASTES
RSA-144	CHLORINATED-SOLVENT DISTILLATION UNIT 6

OPERABLE UNIT 12

Sites	Description
RSA-046	INACTIVE CHEMICAL MUNITION TEST SITE
RSA-064	INACTIVE MUNITION DEMIL & DISPOSAL AREA
RSA-140	INACTIVE DISPOSAL AREA NEAR T/S TOWER

OPERABLE UNIT 13

Sites	Description
RSA-115	INACTIVE EAST SIDE BLOWDOWN LAGOON

OPERABLE UNIT 14

Sites	Description
RSA-013	UNLINED INACTIVE OPEN BURN PADS
RSA-014	UNLINED INACTIVE BURN TRENCHES

OPERABLE UNIT 15

Sites	Description
RSA-032	INACTIVE SCRAP METAL STORAGE AREA
RSA-065	FORMER CHEMICAL DRUM STORAGE AREA
RSA-066	INACTIVE ASH DISPOSAL SITE & DEMIL AREA
RSA-067	FORMER CHEMICAL DRUM STORAGE AREA
RSA-068	INACTIVE TOXIC CHEMICAL DISPOSAL AREA
RSA-069	FORMER CHEMICAL DRUM STORAGE AREA
RSA-110	FORMER DRUM STORAGE/CONSTRUCTION DEBRIS

OPERABLE UNIT 16

Site	Description
RSA-108-RC	TEST RANGE 4 MISSILE IMPACT SITE

OPERABLE UNIT 17

Sites	Description
RSA-050	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA
RSA-051	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA
RSA-063	INACTIVE CHEMICAL MUNITION STORAGE AREA

OPERABLE UNIT 18

Sites	Description
MSFC-D	FUEL OIL STORAGE TANKS CONTAINMENT BERM
MSFC-002	INACTIVE ABANDONED DRUM DISPOSAL SITE
MSFC-003	INACTIVE OLD BONE YARD DISPOSAL SITE
MSFC-034	INACTIVE MECHANICAL ROOM SUMP, BLDG 4481
MSFC-053	FORMER PROPELLANT STORAGE AREA
MSFC-060-RC	INACTIVE DELUGE WATER DRAINAGE SYS.
MSFC-077	INACTIVE OPEN BURNING/DISPOSAL PITS
MSFC-082	INACTIVE CHEM.MUNTS.DEMIL/DISP. TRENCHES
RSA-141	4.2 INCH MORTAR DISPOSAL SITE, BLDG 4656

GROUNDWATER

RSA-145	GROUNDWATER SITE 01
RSA-146	GROUNDWATER SITE 02
RSA-147	GROUNDWATER SITE 03
RSA-148	GROUNDWATER SITE 04
RSA-149	GROUNDWATER SITE 05
RSA-150	GROUNDWATER SITE 06
RSA-151	GROUNDWATER SITE 07
RSA-152	GROUNDWATER SITE 08
RSA-156	GROUNDWATER SITE 12

Summary

STATUS:

Redstone Arsenal (U.S. Army/NASA) named to the final National Priorities List Federal Register, Vol. 59, No. 103, May 31, 1994. The effective date was June 30, 1994.

NUMBER OF SITES:

170 AEDB-R Sites
65 Sites with future action planned in AEDB-R
105 listed as Response Complete in AEDB-R
On NPL: 92 sites/12 RC
7 Sites with future action planned that will be added to AEDB-R

DIFFERENT SITE TYPES (as listed in AEDB-R):

7 Burn Areas	12 Contaminated Groundwater
9 Contaminated Sediments	6 Surface Disposal Areas
18 Chemical Disposal	2 Building Demo/Debris Removal
1 Drainage Ditch	8 Disposal Pit/Dry Well
23 Industrial Discharge	2 Incinerators
9 Landfills	7 Oil/Water Separators
35 Storage Areas	5 Surface Impoundment/Lagoons
1 Plating Shop	2 Spill Site Areas
3 Sewage Treatment Plants	3 Above Ground Storage Tanks
8 Underground Storage Tanks	1 Waste Line
3 Waste Treatment Plants	5 Unexploded Munitions/Ordnance

CONTAMINANTS OF CONCERN:

Chlorinated Solvents, Pesticides, UXO,CWM, Metals

MEDIA OF CONCERN:

Groundwater, Soil, Sediment, Surface Water

COMPLETED REM/IRA/RA:

REM at 32 Sites (25 fencing, 3 caps, 2 no-dig restrictions, 1 drum removal, 1 septic tank removal)
(see REM/IRA/RA section for complete list)

CURRENT IRP PHASES (including sites to be added to AEDB-R):

RI/FS at 26 sites RD at 7 sites RA at 4 sites
RA(O) at 1 site

PROJECTED IRP PHASES (including sites to be added to AEDB-R):

RI/FS at 61 sites RD at 38 sites RA at 61 dites
RA(O) at 31 sites LTM at 52 sites

IDENTIFIED POSSIBLE REM/IRA/RA (including sites to be added to AEDB-R):

RA at MSFC-003, 034, 053, RSA-010, 011, 013, 014, 045, 048, 049, 052, 053, 054, 056, 057, 058, 059, 060, 061, 063, 064, 065, 066, 067, 068, 069, 083, 087, 088, 089, 095, 096, 109, 110, 112, 113, 117, 122, 126, 134, 135H, 138M, 142, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 183

DURATION:

Year of IRP Inception	1990
Year of RA Completion	2013
Year of IRP Completion	2035

Installation Information

SITE DESCRIPTION:

Redstone Arsenal (RSA) is a U.S. Army facility located in Madison County, Alabama. RSA occupies approximately 38,300 acres. The Department of Interior owns approximately 4,100 acres of this property and the Tennessee Valley Authority owns 2,900 acres. Another 1,841 acres in the interior of RSA comprise the George C. Marshall Space Flight Center (MSFC) of the National Aeronautics and Space Administration (NASA). RSA is bounded on the north and east by the City of Huntsville, on the west by the City of Madison, on the west and south west by Wheeler National Wildlife Refuge, and on the south by the Tennessee River (See Figure 2-1 and 2-2). Huntsville has a population of nearly 175,000; Madison County population is ~280,000. Approximately 500 military families reside in government quarters on RSA and approximately 26,000 government employees and contractors work at the facility.

IRP EXECUTING AGENCIES:

INVESTIGATION PHASE: U.S. Army Corps of Engineers
ACTION PHASE: U.S. Army Corps of Engineers

REGULATORY PARTICIPATION:

FEDERAL: U.S. Environmental Protection Agency, Region IV, Atlanta, Georgia
- U.S. Department of Interior, Fish and Wildlife Service, Decatur, Alabama
STATE: Alabama Department of Environmental Management, Special Projects Office, Montgomery, Alabama, Alabama Partnering Initiative (Risk Managers Partnering Agreement)

REGULATORY STATUS:

- NPL, Redstone Arsenal proposed to the National Priorities List Proposed Rule No. 15, Vol. 58, No.119, June 23, 1993.
- Redstone Arsenal (U.S. Army/NASA) named to the final National Priorities List Federal Register, Vol. 59, No. 103, May 31, 1994.
- Technical Review Committee, Established June 1994
- Risk Managers Partnering Agreement, Established October 1997
- Operate an OB/OD area under Interim RCRA Subpart X permit
- Operate hazardous waste temporary storage under RCRA Part B permit

MAJOR CHANGES TO IAP FROM PREVIOUS YEAR (FY2004):

- The Military Munitions Response Program (MMRP) sites were identified and cost liability for cleanup was prepared by AEC. Since the RSA Active/Inactive Range Inventory was incorrectly prepared, there will be significant changes in the sites identified as eligible for MMRP funding.
- During the August 03 Program Review with AEC, significant redirections in priority were given for the RSA IRP. Greater emphasis on phase/site closures was given over trying to meet DPG goals for sites with technical issues that made the goals impracticable (i.e., groundwater sites due to karst hydrogeology).
- The redirections in priority and funding delays experienced in FY2003 and 2004 have played havoc with the RSA site schedules which were prepared in detail and presented in the FY2002 Implementation Plan for the RSA IRP.
- Technical issues between the Army and regulatory community, such as development of Conceptual Site Models, how much data is needed to complete an RI, level of documentation required, and comparison to background data, have also caused delays in site schedules.

Installation Description

Redstone Arsenal is an active U.S. Army Installation and is currently home to U.S. Army Aviation and Missile Command (AMCOM) and various other tenant organizations. The U.S. Army Garrison – Redstone Arsenal became part of the U.S. Army Installation Management Agency – Southeast Region Office on October 1, 2003. Redstone Army Garrison is responsible for the physical facilities and real property including environmental compliance and installation restoration programs associated with that property.

World War II Operations

The land area of the present RSA includes three separate military facilities originally established in 1941; the Redstone Ordnance Plant (later Redstone Arsenal), the Huntsville Arsenal, and the Gulf Chemical Warfare Depot. These three facilities worked together to produce conventional and chemical munitions for use during World War II from 1942 to 1945. A map of the RSA showing the locations of the three separate WWII facilities is enclosed. The responsibilities for weapon production were separated as follows:

Huntsville Arsenal (HVA)

Huntsville Arsenal covered the largest area and was composed of three production plants (Plant #1, #2, & #3), an airfield and associated bomb and other test ranges, and administrative/support areas. The three plants produced a variety of chemical warfare materials (CWM). Both Plant #1 and Plant #2 produced chemical warfare agents (mustard gas [H] & lewisite [L]), chlorine, phosgene (CG), and white phosphorous (WP). Later tear/vomit gas – Adamsite (CN-DM) was produced in a plant south of the original Plant # 3 boundary and thionyl chloride (TC) in a plant northwest of the Plant # 2 chlorine facility. Plant # 3 produced smoke munitions and gel-type incendiaries. Ultimately, Huntsville Arsenal became the sole manufacturer of colored smoke munitions. During WWII, more than 27 million items of chemical munitions were produced.

To support the development and proof testing of munitions, Huntsville Arsenal included an airfield and test ranges for aerial bombing, mortar and other munitions testing. These areas were located on the northwest and western portion of the current facility. Over 8 million pounds of munitions were dropped or fired at these test range areas.

Since the facilities were designed to be self sufficient, each facility had a power plant and sewage treatment facilities. as well as other administrative and support facilities (motor pool, warehouses, etc.).

Redstone Ordnance Plant (ROP)

Munitions (artillery shells, mortars, bombs, etc.) were filled with CWM (chemical warfare material – mustard, lewisite, WP, CG, smoke, gel-type incendiary material, etc.) at one of the three HVA facilities and then transported by railroad to Redstone Ordnance Plant (ROP) for final assembly including installation of any fusing, burster tube, or other explosive configuration. The ROP also produced explosives items, primarily explosive blocks poured from tetryl or composition B. The ROP consisted of six (6) assembly/production lines. Like the HVA, the open style construction enabled rapid change-over from production of one type of munition item to another. Prior to arrival at the ROP, the munition casing was filled but not explosively configured (weaponized). After final assembly of explosively configured munitions, they were transported to Gulf Chemical Depot for storage in bunkers, igloos, and other structures meeting explosives-safety requirements. From the depot, they were transported off-site by either railroad or ship from the dock area. There were two railroad classification yards that were used to load and assemble ordnance trains for movement. In January 1943, the ROP underwent a change in name to the Redstone Arsenal (RSA).

Gulf Chemical Depot (GCD)

Gulf Chemical Warfare Depot stored and shipped the munitions as well as bulk chemical and equipment associated with decontamination. Numerous chemical manufacturing plants were operated at the three facilities to produce raw material for toxic agents, as well as to manufacture the agents themselves. The Depot facilities in 1942 included seven warehouses, 370 igloos, 55 above-ground magazines, and outdoor areas for storage of various types of ammunition, bombs, and chemicals. The Toxic Gas Yard received 500,000 pounds

of mustard as its initial shipment in early 1942. Shipments of phosgene, carbon tetrachloride, and white phosphorus followed.

The primary receipt and shipment location was the dock area located on the southwest corner of the facility. Immediately after World War II, the Gulf Chemical Depot stopped processing ammunition for shipment, and in turn became a focal point for the return of munitions from shipping ports or overseas. In November 1945, an average of 869 tons were received per day. The Depot demilitarized, decontaminated, and stored surplus chemical munitions and agents, as well as captured German chemical agents.

Post World War II Military Operations

Between 1945 and 1949, all three military units reduced activities to standby status levels. On January 15, 1947, the functions of the Gulf Chemical Depot were incorporated into those of the Huntsville Arsenal, and subsequently the Huntsville Arsenal was declared surplus. On March 31, 1949, the Army planned to sell Huntsville Arsenal and designated the Redstone Arsenal as caretaker of the Huntsville Arsenal properties. Due primarily to the nature of CWM produced at the facility and post WWII demil/decon activities. a decision was made not to sell the facility.

In February 1949, the Research and Development Division, forerunner of the Ordnance Rocket Center, was established at Redstone Arsenal. The Redstone Arsenal was reactivated June 1, 1949 to perform basic research and development (R&D) in rocketry. The Chief of Ordnance designated RSA as the site of the Ordnance Rocket Center and the three separate facilities were combined in 1950 into the present day installation. On October 28, 1949, The Secretary of the Army approved the transfer of the Ordnance Research and Development Division Sub-Office (Rocket) at Fort Bliss, Texas, to RSA.

In 1956, the U.S. Army Ballistic Missile Agency (ABMA) was created. The aerospace-related activities of ABMA were transferred to National Aeronautics and Space Administration (NASA) in 1960 and the George C. Marshall Space Flight Center (MSFC) was established in the center of the RSA within the former Huntsville Arsenal Plants Area. Real property, equipment, and personnel were transferred from the RSA to provide the MSFC with resources in 1960 per an Executive Order. The MSFC was instrumental in supporting space exploration, including the Mercury, Gemini, and Apollo Programs of the 1960s and 1970s. Currently, the MSFC commands all Spacelab operations during Space Transport System (STS, e.g., Space Shuttle) missions and tests, and manufactures space vehicles and components.

On August 1, 1962, the U.S. Army Missile Command (MICOM), a major subordinate command of the U.S. Army Materiel Command, was established at Redstone Arsenal. The MICOM was responsible for integrated commodity management of free rockets, guided missiles, ballistic missiles, target missiles, and associated equipment. The MICOM was also responsible for direction and control of assigned installations and activities, basic, and supporting research. On October 1, 1997, the MICOM and the U.S. Army Aviation and Troop Command (ATCOM) were consolidated to form the U.S. Army Aviation and Missile Command (AMCOM) as part of a BRAC 95 decision.

Post World War II Non-Military Operated Activities

The military R&D efforts at Redstone Arsenal have been continually supported from 1949 to present by civilian contractors. The first government contracts were issued in 1949 to the Rohm and Haas Company and the Thiokol Corporation. Both contractors developed, manufactured, and tested solid propellant rocket motors, and developed various types of rocket propellants in support of the Army, Navy, Air Force, and NASA. Rohm and Haas performed research and development on rocket and jet propulsion for various military programs. The Raytheon Company later conducted similar R&D activities, rocket motor assembly, and missile production in the buildings previously occupied by Rohm & Haas. Chemical manufacturing facilities were constructed for the government contractors to provide materials for these R&D activities.

During World War II, the area of Redstone Arsenal currently referred to as the Redstone Rocket Engine Complex or RARE, was the original pilot, and later production plant, for TNT shell loading lines. In 1949, a small

portion of this complex was made available under a cost type contract to Thiokol Chemical Corporation for the experimental and developmental effort associated with solid propellant for the Army's tactical rocket motor program. The original contract was for Army programs only. However, in an effort to keep overhead costs under control, the Army later allowed Thiokol to contract with other government agencies, i.e. Air Force, Navy and NASA. This was later expanded to commercial and foreign military sales. These later agreements resulted in a contract lease arrangement whereby Thiokol was allowed to contract commercial or foreign sales that resulted in rental payment to the Army. This rent factor was based on a percentage of facilities used for support of such programs. Thiokol vacated these facilities in December of 1996.

Subsequent to World War II, the chemical manufacturing facilities used to produce bulk chemicals for the war effort were leased by the Army to privately-owned firms for production of commercial chemicals and pesticides. The manufacturing of pesticides, including DDT, began in 1948. The firms involved were the Alabama Chemical Company (manufacturer of DDT), Solvay Process Division of the Allied Chemical and Dye Corporation (intermediate chemical manufacturer), and John Powell and Company, Inc. (chemical blending, processing, formulating, and bagging). In 1954, Olin Mathieson Chemical Corporation acquired these firms and continued to produce pesticides until 1970. From 1970 to 1971, Olin Corporation, the principal DDT manufacturer, manufactured methoxychlor at the plant under a sub-lease. It is reported that the average production of pesticides was approximately 12,500 tons per year.

The manufacturing of DDT and other pesticides resulted in significant amounts of pesticide contamination as waste product. Thousands of pounds of contaminated wastes were buried in landfills throughout RSA. In addition to solid wastes, large quantities of contaminated wastewater were discharged to surface water. In July of 1979, the U.S. Army initiated an extensive DDT Abatement Program. From July 1979 to August 1982, DDT wastes, including highly-contaminated soil and sediment, were excavated from the DDT manufacturing areas, the DDT drainage ditch, lagoon, and former DDT disposal sites.

Approximately 10,500 cubic feet of pesticide-contaminated solid waste was placed in clay-lined disposal cells of the DDT waste soil landfill (RSA-107). The manufacturing plant structures were dismantled and demolished. In 1983, Olin Corporation began DDT cleanup procedures under a U.S. Justice Department Consent Decree. This remedial action was officially completed in 1987. According to the documentation, RSA-101, 102, 103, 105, and 106 were remediated of DDT contamination. A groundwater, surface water, and a fish monitoring program will continue until residual levels of pesticides, and their breakdown products are reduced to acceptable levels.

It should be noted that the basis for the Olin DDT related remedial work was not consistent with current CERCLA RAGS protocols but was focused almost exclusively on human ingestion of fish. The nature and extent contamination assessment did not include other raw or precursor chemical such as chlorobenzene in either soil, sediment, surface water or groundwater. No ecological risk assessments were performed.

Other former commercial operations included Stauffer Chemical Corporation, which produced chlorine and caustic chemical products, and currently, International Specialty Products, Inc., (formerly General Aniline and Film Corporation) which operates an iron carbonyl production plant under a lease by the Army.

Programmatic Approach

In 2003, the Army Environmental Center (AEC) began examining RSA for Performance Based Contracting (PBC) opportunities. While performing the PBC evaluation, all new IR activities were put on hold and priorities were readjusted pending the transition to PBC. As a result, the Programmatic Approach as described in the FY2003 RSA IAP has been significantly impacted. At present, the program has no overarching programmatic approach, other than to identify some current PBC opportunities and to begin planning for future PBC opportunities. The RSA IRP as presented in this IAP includes some of the vestiges of the FY2003 programmatic approach, but also has significant differences. These similarities and differences are described in the following paragraphs.

Army Goals and Proposed Approach

For the FY2003 programmatic approach, the Army's RRSE process was the primary tool used to define the approach or prioritization of activities needed to achieve the DPG goal of "Remediation in Place" for all sites. Using general site information and previously collected analytical data, the RRSE process ranked each site as "high" (1), "medium" (2), or "low" (3) with regard to imminent risk to the environment. Both human health and ecological assessments were used to complete this evaluation. The prioritization of sites came directly from this potential risk evaluation. According to DPG goals, "high" relative risk sites must reach closure (henceforth defined as "Remediation in Place) by fiscal year 2007. Medium level sites and low risk sites must reach this goal by 2011 and 2014, respectively, thus establishing the foundation for the developed schedule.

The FY2004 IAP approach is based loosely on meeting DPG goals. While the schedules for several "medium" and "low" sites were adjusted to facilitate a "remediation in place" for the "high" groundwater sites, the current overall schedule now reflects a recognition of major programmatic uncertainties, such as Army/NASA integration within the MSFC, the Military Munitions Response Program, and the PBC efforts. Specifically for those sites impacted by the Army/NASA integration or ordnance/explosives (OE) issues, schedules were moved out into the future pending resolution of the issues. For the PBC initiative, site schedules were readjusted to plan for quick site closures, regardless of the RRSE and DPG goals and the completion of the potential source area (PSA) efforts for the groundwater sites has taken a greater priority over treatability study efforts at groundwater site RSA-146, which has known off-site migration of contamination. The FY2004 obligation plan is in complete disarray due to the changes in priorities and, to date, no obligation of funds has been possible because the existing contract vehicle structures were prepared prior to the PBC evaluation efforts and do not reflect the current realignment of priorities.

While in FY2003, a second factor used to develop the plan was the contractor resource capacity, in FY2004 the contractor resource capacity was merely a factor in completing the unconstrained CTC. In FY2003, the unconstrained schedule presented in the IAP was developed using the goals set forth by the RRSE and was then "resource loaded" with the available contractor resource capacity. The draft Redstone Arsenal FFA (Federal Facility Agreement) included agreed upon review cycle times for documents. These review cycle times were used as assumptions in developing the final schedule. However, in FY2004, with the contracting strategy changing in response to the PBC initiative, the outyear contractor capacity is currently unknown. Therefore, the current contractor capacity was used as a factor in preparing the unconstrained CTC schedule with little or no consideration of the capacity for the constrained CTC schedule.

In FY2003, the third factor used to develop the plan was the allocated funds from AEC which was used to develop a "budget constrained" schedule for the RSA CTC. For FY2004, the outyear budget gained primacy over contractor capacity in developing the constrained schedules. A major effort was undertaken during FY2003 to capture sound, defensible CTC estimates for each of the known IR sites. Based on these efforts, a more realistic outyear budget was prepared for RSA by AEC. Therefore, the current outyear budget is far more reflective of program needs than it has been since 2000. However, it must be noted that this IAP contains a number of indefensible assumptions that were included in an attempt to capture "environmental liability". These assumptions include estimates for unidentified sites that may be identified during the PSA efforts ($42,000k) and two integrator operable unit sites that may result from our upcoming integrator operable unit evaluation efforts ($6,500k). It must be noted that these estimates are not auditable and, as such, are not to be consid-

ered part of the official RSA CTC for FY2004. It is also expected that future fluctuations in the CTC estimate will again occur until site data anc complexity of site conditions can be incorporated into the development of a more refined site closure estimate.

In summary, the RSA IRP is undergoing a major upheaval during the transition to PBC, making the development of long-range goals, and strategies for meeting those goals, impossible at the current time.

Planned Strategies

In FY2003, a series of planned strategies was outlined to inform the reader of programmatic and technical strategies that were to be used in order to bring the program to completion. Many of the same strategies, particularly the technical strategies, are still applicable. These strategies are discussed below.

The current strategies identified to facilitate and expedite the established schedules include the following:

A. Separation of surface media and groundwater sites

Redstone Arsenal is located in a highly developed Karst area. As such there is significant interconnection between released contaminants (or ongoing subsurface source areas – DNAPL, etc.) at one surface media site and the groundwater under-laying other surface media sites. As such the complexity of the groundwater investigation and interpretation of results has been difficult. Given this complexity, Redstone Arsenal has conducted a site-wide hydrogeological study (the “Karst Report”) which serves as the basis for all groundwater investigations and ultimately remedial actions. Based on the findings of this report, Redstone Arsenal has elected to separate the surface media from groundwater. A set of groundwater “sites” was developed to allow integrated investigation and interpretation of groundwater contamination.

The remaining (original) surface media sites investigations are focused on nature and extent relevant to complete human and ecological risk pathways. Characterization of the subsurface to the extent necessary to determine its potential for sourcing contaminants to groundwater is also being completed under the surface media investigation. Remedial actions for subsurface source material will be developed in context of the total objectives for the groundwater site.

For the FY2003 CTC estimates, a hard line was drawn between estimates included in the surface media sites and those included in the groundwater sites. During 2003, this approach evolved as more input was received from team members. For FY2004, groundwater remediation estimates were allocated to individual surface media sites if the groundwater contamination source was proven to be from that site and isolated plumes were identified.

B. Development of Integrator OU

It has been determined that a primary pathway of contamination migration at RSA occurs through karstic hydrogeologic pathways with the direction of flow originating from upgradient terrestrial habitats into downgradient streams and wetlands. Thus, potential cumulative, or integrated effects from previous releases are most likely to be observed in these streams and wetland areas. Upgradient sources, originating both off-site and within the installation must be determined in order to effectively evaluate the potential contribution to and impact in determining the appropriate remedial strategies for a site. In order to assess the upgradient sources originating off-post, a perimeter monitoring system will need to be instituted to establish water quality entering the installation. Similarly, perimeter monitoring will need to be established to monitor water quality and contaminant flux to determine contribution exiting the installation. Two integrator sites have been included in the FY2004 CTC to focus on areas surrounding the high RRSE groundwater sites. These two integrator sites will be used in determining remedial strategies and priorities toward the road to closure for the groundwater sites.

C. Improved cost estimates

Previous cost estimates have utilized a variety of tools and techniques. As with all estimates they are based on a set of assumptions. In re-evaluating previous CTC estimates, the assumptions which serve as the basis for those estimates have not always been fully documented. To capture the assumptions used as the basis for

costs, Redstone Arsenal has selected to utilize the RACER software system to both standardize and document the assumptions which support cost estimates.

Following the re-baseline of the CTC estimates in FY2003, the RSA IRP again experienced a significant increase after negotiating a delivery order for work planned over the next several years. While the cost estimation for the delivery order contained more detail than the previous RACER estimates, it was determined that the additional detail was not the significant driver for the increased estimates. Instead the increase was due primarily to a greater understanding of the level of detail that was needed for developing conceptual site models for each of the sites and for the collection of the data necessary for the conceptual site model in order to complete the RI/FS for each site.

After completing the FY2004 CTC estimates, we were pleased to note that once the RACER estimates were replaced by the negotiated amounts in the FY2003 CTC, the FY2003 and FY2004 CTC estimates are tracking appropriately (i.e., the FY2004 CTC was very close to the FY2003 CTC corrected for the contract negotiated amounts minus the funds received in FY2003). However, this applies to only the "official" RSA FY2004 CTC. In addition to the CTC estimates for each of the IRP sites, the estimates presented in this IAP also include estimates for unidentified sites that may result from the PSA work and the two integrator OUs, which were not included in the FY2003 CTC. Due to the limited knowledge regarding the unidentified and integrator OU sites, site-specific estimates developed during the IAP workshop for these sites are to be considered rough placeholder estimates. Supporting assumptions have not been developed for these sites. Professional labor management technology within RACER was used to allow data import into the AEDB-R database. A user-defined assembly was used to develop costs of the rough placeholder estimate, which was developed during the IAP workshop.

Because the estimates for these unidentified sites and the integrator OUs are not based on identifiable assumptions that can be audited, these estimates are not considered to be part of the official RSA FY2004 CTC.

D. Emphasis on communication

Communication will continue to play a significant role in the successful execution of the RSA IRP. Each of the stakeholders plays a very different, yet equally significant, part in the implementation of this approach and execution of the plan. Therefore, it is imperative that formal lines and means of communication are identified and followed during the process between these entities as well as within the individual teams. The organizational chart (Figure 1) captures key members of the team and includes: Redstone Arsenal IRP, Regulatory Agencies (EPA & ADEM), and USACE / Shaw E&I personnel.

E. Significant Uncertainty Associated with Overall Program Management and Costs

There are several areas of significant uncertainty associated with the strategies outlined in this IAP which could have a major impact on the RSA IRP.

1. Although RCRA is an ARAR to CERCLA achieving response complete or remediation in place under CERCLA may not be response complete for the site. Under the RCRA Hazardous Waste Permit for RSA, each IRP site is listed as a SWMU and may require closure through RCRA.

2. There are a minimum of four different landowners (Army, NASA, Tennessee Valley Authority, and Department of Interior) who all hold property contained within the boundaries of what is known as RSA. Each of these landowners is impacted by contamination on the installation. Contaminant contribution, responsibility of contamination, and ownership of contamination are issues which will require resolution. Costs for determining off-post groundwater quality may likely be the Army's responsibility for future cost-recovery.

3. Military Explosives Contamination (MEC) issues at current IRP sites will need to be fully addressed prior to closure of the site under CERCLA/RCRA regardless of whether or not that site is eligible for funding under the Military Munitions Response Program. A strategy for dealing with the MEC issues at current IRP sites needs to be developed to facilitate closure and future delisting.Significant Uncertainty Associated with Overall

Program Management and Costs

In addition to estimated cost increases related to new site data and changes in the proposed plan, three other factors which may significantly increase costs have been identified. These include: a) new surface media sites which contribute to groundwater contamination, b) regulatory status of waste from CERCLA remedial actions, c) uncertainties related to responsibility for Olin DDT area contamination, and d) Army / NASA property ownership and related fiscal responsibility for investigation and remedial costs.

Based on analytical data from the groundwater site PTSM (principle threat source material) investigations and review of archival information relevant to this data, it is likely that several new sites will be added as the groundwater site investigations proceed.

CERCLA actions are risk based and as such can result in removal actions which generate wastes that do not exceed RCRA hazardous waste criteria or even LDR criteria. The current assumption is that most CERCLA actions will be required due to exceedances of risk criteria but will not be greater than LDR criteria. If CERCLA wastes transported off-site require stabilization / disposal as RCRA hazardous waste then the common assumption that these wastes are non-hazardous may not be valid. On a site-by-site basis this change in waste regulatory status may result in changes in selected remedial actions due to this cost increase.

The original Olin DDT investigation and remedial action was limited to human health issues related to DDT exposure only. The original investigation did not consider other contaminants associated with DDT production and with other human health and ecological concerns. EPA has therefore indicated that the Army may be held responsible for these additional issues. This could result in the addition of a new site with major costs both for investigation and remedial action.

The current NPL listing is a joint listing (Army / NASA) based on an assumption that the Army owned the property currently occupied by NASA. Newly acquired property records and subsequent legal interpretations of those documents indicate that the NASA occupied property is actually NASA owned. Since all previous regulatory and Army / NASA MOAs were based on this incorrect assumption, there may be substantial impact of the joint NPL listing and the Army's responsibility for investigation and remedial action on this NASA property.

Contamination Assessment

Beginning in 1970, the U.S. Army Environmental Hygiene Agency conducted a field survey to characterize the domestic and industrial wastes being discharged from RSA, and to determine if water pollution problems were being caused by the waste discharges. The study identified water pollution problems from two sewage treatment plants, and discharges from Olin Corporation DDT manufacturing operations.

In 1977, The U.S. Army Toxic and Hazardous Material Agency (USATHAMA) completed the Installation Assessment which identified possible disposal areas on Redstone Arsenal. Pesticide contamination was confirmed and it was subsequently decided that remedial action was necessary. The DDT cleanup program occurred at RSA between 1983 and 1988.

In September 1989, the EPA conducted an Interim RCRA Facility Assessment (IRFA) at RSA and another at MSFC. This study resulted in the identification of 110 sites at RSA and 77 sites at Marshall Space Flight Center (MSFC), which is operated by NASA. Between 1989 and 1990, the U.S. Army re-evaluated the EPA IRFA and identified additional sites on RSA, including property located on RSA that is owned by the Tennessee Valley Authority and the Wheeler Wildlife Refuge. A total of 286 sites were identified in this follow-on study. Several sites have since been added to the list, for a current total of 306 sites.

Of the 306 sites, the Army has responsibility of 222 sites, including the 5 Olin Chemical Corporation DDT sites, and NASA is responsible for 84 sites. Of the 222 Army sites, 97 are being managed under CERCLA and 125 are being managed under RCRA. Of the 97 Army CERCLA sites, 85 are being actively investigated and 12 are response complete.

The CERLCA sites were originally organized into 18 Operable Units (OUs). The arsenal was divided into OUs based on watershed locations, critical and sensitive ecological habitats, soil types, and land use. These 18 OUs continue to be used for surface media site purposes. Interpretation of investigative work conducted prior to 2002 was complicated by findings of contaminants in wells on multiple sites which did not appear to be related to site operational activities.

Based on this finding and the basic awareness of the potential for significant interconnection between groundwater at one location and groundwater at other locations in Karst formations an installation wide hydrogeological study was initiated. The “Karst Report”, as it has become known, has documented the highly interconnected nature of groundwater at the facility and the potential for rapid and long distance contaminant transport. It also documented significant connection between groundwater and surface water. These interconnections provide conduits for contaminant transfer from groundwater to surface media via springs and other artesian structures as well as opportunities for contaminants in surface water to enter groundwater via sink holes, features in losing reaches of streams and other mechanisms.

Based on these findings a decision was made to separate surface media (primarily surface and subsurface soil) from groundwater. Eight groundwater sites have been established based on data from the Karst report. This should allow more focused interpretation of surface media contaminants as posing either: a) human or ecological risks from surface soil or sediment exposure pathways, or b) principle threat source material serving to contaminate groundwater locally or at distance.

Although not included currently identified as a site, it is anticipated that one or more “integrator operable units – IOUs” will be established in the future. These will be necessary to enable comprehensive evaluation of human and ecological risks from multiple contaminants originating at multiple sites – both surface media and groundwater. These IOUs will enable RODs from multiple sites to establish common sampling points and common points of compliance.

The Army is currently negotiating a Federal Facilities Agreement (FFA) with the Alabama Department of Environmental Management (ADEM) and the EPA. The Redstone Arsenal hazardous waste management program is operating under a RCRA Part B permit for temporary storage of hazardous waste and an interim Subpart X permit for the operation of the Open Burn/Open Detonation (OB/OD) area.

ER,A ELIGIBLE
ACTIVE AEDB-R SITES

MSFC-002
INACTIVE ABANDONED DRUM DISPOSAL SITE

SITE DESCRIPTION

MSFC-2 is a waste pile from the 1950s in the 100-year floodplain. It is located on the western edge of MSFC, and extends approximately 1,000 feet onto Redstone Arsenal. The site is approximately 10 acres. MSFC-087 is located within the boundary of MSFC-002.

Based on test pit data and additional visual site inspection, predominantly construction debris has been disposed of at the site. Limited other materials, such as empty 55-gallon drums, truck tires, and other debris typically associated with deposits due to flooding were observed on the surface. No evidence of industrial disposal has been found. Previously reported debris from the former beryllium machining facility demolition were not observed. Large pieces of construction debris were piled indiscriminately along the length of the site.

This is a high RRSE site due to ecological concerns. However, contaminants may be due to depositional transport not associated with site activities. The ongoing background surface media study is expected to eliminate metals contamination at this site. Potential contribution from MSFC-087 (cyanide pit) is pending results.

STATUS

SURFACE OU: OU-18
GW SITE #: RSA-149
TYPE CODE: DA
TYPE NAME: Surface Disposal Area
SITE ACRES: 10
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN:
Metals, Pesticides, SVOC, VOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Previous sampling was done in the areas between source piles. Analysis of that data shows no component of risk. Recent sampling was focused on the source piles themselves. Based on visual inspection during RI activities, it is anticipated that no action will be required. The draft RI is expected in April 2004.

MSFC-003
INACTIVE OLD BONE YARD DISPOSAL SITE

SITE DESCRIPTION

MSFC-3 is located southwest of the Historic Redstone Rocket Test Stand, on both sides of Dodd Road and East of Lem Road. MSFC-3 was an inactive disposal site, approximately 46 acres in size. MSFC-3 was used for the disposal and/or treatment of chemical munitions, toxic materials, chemical wastes, and phosphorous-filled munitions. It was formerly knows as the "old bone yard."

Within MSFC-3 lies a 1.5-acre area labeled on earlier maps as the "Permanent Toxic Storage Area" and several burn pits. MSFC-3 has been expanded to the south and southwest to include MSFC-82 where chemical artillery shells were demilitarized and disposed of in trenches. Several rounds have been discovered in fill material from this area.

NASA has active, buried utility lines going through this site. In 2000, fifty two empty chemically configured 4.2" mortar rounds were uncovered during the repair of a water main. Based on historical reviews, construction and misc. debris from the primary site was relocated to the east across Dodd Rd. during construction of water reservoirs for the Saturn test stand. This activity created two non contiguous sites which together represent MSFC-3.

This site is entirely located within the MSFC boundary. Therefore, LUC enforcement by the Army is questionable.

STATUS

SURFACE OU: OU-18
GW SITE #: RSA-149
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 46
RRSE RATING: Medium
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, Pesticides, CWM
MEDIA OF CONCERN:
Surface and Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Based on PA/SI data, initiate an RI/FS to a) identify any hot spots that present surface risk , b) complete subsurface area nature and extent including potential sourcing to groundwater.

Site should be transferred to the MMRP (MSFC-003-R-01) program. Prior to transfer, current plans under DERP are to implement land use controls and fencing for UXO hazards.

Three 5 year reviews and annual monitoring for the first 5 year period are planned for MSFC-003. Subsequent monitoring will be based on the first year monitoring results. MSFC-082 will be funded under this site.

MSFC-027
INACTIVE WASTE ACCUMULATION AREA

SITE DESCRIPTION

New historical information from the archive search indicates that MSFC-27 was a large (~5.5 million gallon) fuel and other hydrocarbon tank farm. Subsequent use included a contractor lay down yard and a former paint spray booth, which was operated by NASA. The site is located near Observatory Road, near the east-central MSFC boundary. It is approximately 19 acres in size and is relatively flat. Portions of the site are wooded, but the majority is gravel or asphalt-paved area within a fence. The site previously included several large above ground fuel storage tanks. Miscellaneous materials were stored in the area including scrap metal of all types, waste oils, solvents, and sludges.

The site boundary includes MSFC and RSA property. MSFC-081 is located within the site boundary. Dye trace studies have indicated rapid transport from this site downgradient within RSA-148. Chlorinated hydrocarbons have been detected in the groundwater. However, the groundwater contamination is not believed to be from this site.

STATUS

SURFACE OU: OU-5
GW SITE #: RSA-148
TYPE CODE: DA
TYPE NAME: Surface Disposal Area
SITE ACRES: 19
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals, Pesticides, PCBs
MEDIA OF CONCERN:
Surface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

The RI/FS for soil contamination will be completed. No further soil action is expected. Any related groundwater investigations (and remedies) are currently assumed to be the responsibility of NASA. In the future, this assumption may change as a result of ongoing negotiations aimed at achieving a better coordinated appoach to overall site cleanup.

MSFC-034
FORMER CHEMICAL PRODUCTION AREA

SITE DESCRIPTION

MSFC-34 is located on ~54 acres, in the northern part of MSFC. This site includes all plants associated with WWII HSA mustard production and filing facilities, not just the 4481 sump (as previous listed). There are 24 USTs (16 ethanol and 8 fuel oil) associated with the production and filling facilities believed to still be in place at the site. Mustard scrubbing and decon facilities and potential PCBs from transformers are additional areas of concern.

Soil borings indicate subsurface soils and groundwater have been impacted with chemical agents and their degradation products. The exact source of the release is unknown, but may be related to industrial sewer lines or fluid storage tanks.

In 1959, MSFC took control of these buildings. There are 5 NASA sites located within the MSFC-34 site boundary, including the industrial sewer system.

STATUS

SURFACE OU: OU-18
GW SITE #: RSA-149
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 54
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, PCBs, SVOC, CWM
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Additional RI/FS will be completed that includes the installation of horizontal wells and vertical wells for evaluation of potential groundwater sourcing. The RI effort will require real time CWM monitoring. RA activities include excavation of the 24 USTs. It is assumed that these excavations will not require CWM support. It is anticipated that LUCs will be required due to the highly developed nature of the area and the potential presence of CWM. Successful implementation of the LUC will require coordination with NASA. Three 5 year reviews and annual monitoring for the first 5 year period are planned for MSFC-034. Additional monitoring will depend on initial data.

MSFC-053
FORMER PROPELLANT STORAGE AREA

SITE DESCRIPTION

MSFC-53 is located in the undeveloped area in the vicinity of Building 4751 with Tiros Street to the north, Martin Road to the south, Gemini Avenue to the west, and Thor Avenue to the east. MSFC-53 is a former propellant storage and test site that consisted of a series of concrete-lined test stands and cells, and a propellant storage building (Building 4717). The activities at the site included the use of hydrocarbon-based rocket fuels and chlorinated solvents used for cleaning. All of the test facilities were demolished in 1974.

NASA operates a metals plating shop within the MSFC-053 boundary.

STATUS

SURFACE OU: OU-18
GW SITE #: RSA-148
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 12
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs
MEDIA OF CONCERN:
Surface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, LTM

PROPOSED PLAN

The PA/SI indicates that a RI/FS, PP, ROD is warranted. Additional sampling will be primarily based on information received from an Archive Search Report. Land use controls are anticipated if industrial land use risk criteria are selected as the basis for remedial action. One 5 year review is planned.

The implementation of LUC is dependant on NASA coordination.

MSFC-074
INACTIVE DISPOSAL SITE

SITE DESCRIPTION

MSFC-74 was a disposal area used from approximately 1949 to 1954. This unit is located in the MSFC East Test Area on Mariner Road. The area was used for disposal of construction debris. Storm water runoff drains to the east toward RSA-10. The site boundaries were expanded to include the additional debris mounds identified during the PA/SI effort. The site is now ~12 acres and is covered with trees and vegetation. Metals were detected in the soils in low levels. Sourcing to RSA-148 groundwater must also be evaluated for this site.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-148
TYPE CODE: DA
TYPE NAME: Surface Disposal Area
SITE ACRES: 12
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Based on PA/SI data, initiate an RI/FS effort to fully characterize the site. The PP, ROD actions will depend on results of additional RI/FS effort. Current data does not indicate that any action will be required.

MSFC-077
INACTIVE OPEN BURNING/DISPOSAL PITS

SITE DESCRIPTION

MSFC-77 consists of two former debris disposal pits, each 100 feet in diameter. Based on the reported period of operation from 1950 to 1956, this site is not considered an OE hazard area. The site is located north of Martin Road and west of Thor Road. Currently, the unit is not readily discernible, but is estimated to be 3.4 acres. The area has been filled and vegetated with grass and small pine trees. An earthen berm surrounds the general area on two sides.

STATUS

SURFACE OU: OU-18
GW SITE #: RSA-149
TYPE CODE: AB
TYPE NAME: Burn Area
SITE ACRES: 3.4
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Based on PA/SI data, initiate the RI/FS effort using test pits to characterize the area. The groundwater sourcing evaluation is complicated due to the lack of groundwater. No remedial action is planned for this site, unless test pits indicate otherwise.

RSA-010
CLOSED UNLINED SANITARY LANDFILL

SITE DESCRIPTION

RSA-010 currently 79 acres in which household waste, paper products, and construction debris have been disposed. The sanitary landfill (20 acres) was active in 1973 and was closed in 1991. This site was expanded to the north to include the waste oil pits and a DDT abatement cell. A new construction debris landfill (permitted) is operated on top of part of the RSA-10 landfill.

A groundwater pump and treat system was operated from June 1996 to August 1999 for VOC contamination.

RSA-010 is located in an extreme downgradient position relative to a number of known upgradient source areas. Groundwater at RSA-010 is contaminated with VOCs consistent with these known source areas. The delineation of these upgradient sites and their relative contribution to the plumes observed at RSA-010 is a critical component with regard to remedial decision making at this site.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-148
TYPE CODE: LF
TYPE NAME: Landfill
SITE ACRES: 79
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
VOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil, Surface Water, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, LTM

PROPOSED PLAN

Complete the upgradient surface media source determination and their relative contribution to the RSA-148 groundwater plume versus any RSA-010 contributions. Current LTM has served dual purposes (RCRA compliance monitoring and CERCLA investigation). This data indicates minimal, if any, contribution from RSA-010 surface media. Since current data does not indicate groundwater sourcing from the northern expanded area noted in the site description, a removal action does not appear to be warranted.

Source characterization of the southern half of RSA-010 is further complicated due to concrete rubble from the ongoing C&D operations of the landfill. Investigation of the groundwater within RSA-148 is constrained by MSFC's ongoing surface media and groundwater investigation. If the RSA-148 RI data indicate sourcing to groundwater, then additional investigation may be necessary.

Surface water and sediment on the southern boundary of RSA-010 will be addressed in the anticipated Integrator OU along this segment of Huntsville Spring Branch.

Expected current path forward is to complete the RI/FS report through the Proposed Plan and ROD. No additional investigative sampling is anticipated. Remedial action for RSA-010 includes LTM and LUC.

Five 5 year reviews with annual monitoring during the first 5 year period are planned. The future monitoring periods will depend on initial results. It is anticipated that after the first 5 year review, the CERCLA LTM will be replaced / incorporated into the RCRA C&D permit which has ongoing LTM requirements and the costs will be funded by the facility O&M budget.

RSA-011
INACTIVE SEWAGE TREATMENT PLANT #1

SITE DESCRIPTION

RSA-11 consists of an inactive sewage and wastewater treatment plant located in the north central section of the former Redstone Arsenal Rocket Engine Facility North Plant. The plant was used (1940s-1970s) for treatment of domestic sewage generated in the eastern portion of Redstone Arsenal, and washwater from propellant manufacturing operations. This site does not include the historic discharge line which will be included as part of the RSA-146 PTSM investigation. Metals, pesticides, PCBs, VOCs and perchlorate have been detected in soil.

STATUS

SURFACE OU: OU-11
GW SITE #: RSA-146
TYPE CODE: ST
TYPE NAME: Sewage Treatment Plant
SITE ACRES: 2.9
RRSE RATING: High
OE RAC: No
CONTAMINANTS OF CONCERN: Metals, Pesticides, PCBs, VOCs, Perchorate
MEDIA OF CONCERN: Surface & Subsurface Soil
COMPLETED IRP PHASE: PA/SI
CURRENT IRP PHASE: RI/FS, RD (funded), RA
FUTURE IRP PHASE: LTM

PROPOSED PLAN

RI/FS report is currently in the draft stage. Soil removal for PCBs and other contaminants of approximately 500 cy is expected to be shipped as characteristic hazardous waste and treated to meet LDR criteria.

RSA-013
UNLINED INACTIVE OPEN BURN PADS

SITE DESCRIPTION

This site is located on TVA property that RSA has a MOA to use and within an operational range. TVA has to approve all plans for this site. RSA-13 is located near the southwest corner of RSA, south of McAlpine Road, and northeast of the Tennessee River. The site consists of an open burn area where chlorinated solvents, solvent-contaminated materials, waste rocket motor propellant, and scrap metal were incinerated on the ground surface. The resulting ash was disposed of at the RSA-14 ash field, and RSA-66. The flashed metal was salvaged.

The site also includes the former RSA-132 popping furnace area and the former RSA-133 rocket motor washout rack and sump area.

A groundwater pump and treat system was operated from 1997-2000 for VOC contamination. High levels of perchlorates have been detected in the groundwater.

UXO is present at the site. (RSA-013-R-01 has been opened.)

STATUS

SURFACE OU: OU-14
GW SITE #: RSA-151
TYPE CODE: AB
TYPE NAME: Burn Area
SITE ACRES: 49
RRSE RATING: Medium
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, VOCs, Perchlorates, Explosives
MEDIA OF CONCERN:
Surface & Subsurface Soil, Surface Water, Sediments
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, LTM

PROPOSED PLAN

Additional RI/FS is necessary due to the expanded site boundary that now includes the embayment area and wetlands to the west and the potential presence of perchlorate contamination. Land use controls are expected. If a surface media source of perchlorate is discovered, appropriate changes to the planned remedial actions will be required. Three 5 year reviews and annual monitoring during the first 5 year period are planned.

Evaluate area for potential integrator operable unit development. Costs for the evaluation and development of the integrator operable unit are included as global tasks within the CTC for the groundwater sites. (Groundwater will be sampled under RSA-151.)

RSA-014
UNLINED INACTIVE BURN TRENCHES

SITE DESCRIPTION

RSA-14 is located in the southwest corner of RSA, south of McAlpine Road, northeast of the Tennessee River, and within an operational range. This site is located on TVA property that RSA has permission to use. Two open trenches, dimensions 150 to 200 feet long and 35 feet wide and about 6 to 12 feet deep, were used to incinerate solid materials contaminated with rocket propellant, waste solvents, and solvent-contaminated materials.

A SVE system was operated from 1999 to 2000 for VOC contamination. Maximum TCE concentrations of 6,250 mg/kg were in the soils beneath the northern trench. The southern trench soil sample indicated the presence of TCE, but in lower concentrations. Evidence exists that chemical munitions were disposed of at this site.

UXO is present at the site. (RSA-014-R-01 has been opened.)

STATUS

SURFACE OU: OU-14
GW SITE #: RSA-151
TYPE CODE: AB
TYPE NAME: Burn Area
SITE ACRES: 9.8
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, VOCs, Perchlorates, Explosives
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, LTM

PROPOSED PLAN

Additional RI/FS is planned to include potential perchlorate contamination in soil and the potential presence of CWM. 1,4-Dithiane and oxathiane have been detected in groundwater samples collected from the site. These contaminants have not been addressed in soils to date. Land use controls are expected, but planned remedial action requirements could change based on the results of the additional RI/FS. Three 5 year reviews and annual monitoring during the first 5 year period are planned.

Evaluate area for potential integrator operable unit development. Costs for the evaluation and development of the integrator operable unit are included as global tasks within the CTC for the groundwater sites. (Groundwater will be sampled under RSA-151.)

RSA-032
INACTIVE SCRAP METAL STORAGE AREA

SITE DESCRIPTION

RSA-32 was used as a temporary storage yard for munition casings and non- explosive component shipments between 1941 and 1943. The site was used as a storage area for zinc bars for the National Defense Stockpile since the early 1970s. The site was used from the 1980s to 1991 as a scrap metal storage area. The site is located southeast of Shields Road and south of Buxton Road. MSFC-026, a hazardous waste storage area, was used from the 1970s to the early 1980s, and is located within the RSA-32 boundary. Although current analytical data suggests the surface media site at this location contains no source material, the underlying groundwater contains contamination that seems to originate from the MSFC activities (MSFC-26). NASA had received clean closure for MSFC-026. This decision is being reviewed.

STATUS

SURFACE OU: OU-15
GW SITE #: RSA-152
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: 10
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
VOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC

PROPOSED PLAN

EPA has asked NASA to review MSFC-026 to address the solvent contamination in groundwater. A PP & ROD will be completed for the zinc storage.

RSA-045

REMOVED UNDERGROUND USED OIL STORAGE TANK

SITE DESCRIPTION

This site is located east of Patton Road and north of Martin Road, in the north central parcel of RSA. Historical information indicates the site was used as an Adamsite and tear gas filling plant, therefore, the site should be renamed the "Former Adamsite Plant". The site was subsequently used by Redstone Ordnance Plant as Line 8 through the 1950s. Previous investigations were limited to a UST area on the north side of the site, therefore, additional investigation is required. Investigation of the UST area found that soils were contaminated with DDT and PCBs.

STATUS

SURFACE OU: OU-2
GW SITE #: RSA-145
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 38.5
RRSE RATING: Medium
OE RAC: No
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, Pesticides, PCBs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Additional RI/FS is necessary due to expanded site definition and boundary (now 38 acres). Characterization for perchlorate contamination is also required due to smoke munition activities. Soil removal (500 cy) from the waste oil tank area, drainage pathways and Adamsite area is expected and is anticipated to be shipped as Non-Hazardous Waste that meets LDR criteria. Planned remedial actions are based on data collected from previous investigations. Information gathered from the expanded investigation may require additional actions to be taken that are not currently included in the CTC estimate.

RSA-048
INACTIVE CLOSED SANITARY LANDFILL

SITE DESCRIPTION

RSA-48 is located north of the old railroad bed, east of Patton Road, west of McDonald Creek, and north of Martin Road in the northeast portion of RSA. This disposal area is approximately 4.5 acres and fenced. It was active from 1947 through the early 1950s and received construction rubble. Limited previous sampling indicates the presence of industrial waste constituents. The nature and extent of these waste materials is unknown. The disposal area was not capped, but has a thin layer of soil covering the waste piles / trenches.

Low levels of SVOCs, lead and chromium have been confirmed in the soil. Environmental concerns are driven by the potential of contaminant release from the disposal of sanitary waste in the wetland.

STATUS

SURFACE OU: OU-2
GW SITE #: RSA-145
TYPE CODE: LF
TYPE NAME: Landfill
SITE ACRES: 4.5
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, RA(O), LTM

PROPOSED PLAN

A more comprehensive RI effort is planned based on review of existing data and test pit findings. Primary objectives of the RI are to delineate and characterize source term and evaluate source to groundwater leaching. Any remedial action will be dependant on the findings of the additional RI. Current expected remedial action is LUC, MNA and LTM, unless RI data indicates source material requiring other remedial technologies.

RSA-049
CAPPED ARSENIC WASTE LAGOONS-WEST

SITE DESCRIPTION

RSA-49 is located south of Neal Road at the Toftoy Thruway intersection. It is approximately 12.5 acres and consists of three closed and capped unlined industrial waste lagoons formerly used for the disposal of arsenic-contaminated waste generated from lewisite manufacturing operations during the early 1940s.

In 1994 and 1995, a RCRA cap was designed and constructed over the lagoon.

The RRSE will be reevaluated based on the establishment of RSA-183 and the new site boundary established (12.5 acres) for RSA-49.

STATUS

SURFACE OU: OU-5
GW SITE #: RSA-148
TYPE CODE: SI
TYPE NAME: Surface Impoundment/ Lagoon
SITE ACRES: 12.5
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN: Metals, SVOC
MEDIA OF CONCERN: Surface & Subfurface Soil, Sediment, Surface Water
COMPLETED IRP PHASE: PA/SI
CURRENT IRP PHASE: RI/FS
FUTURE IRP PHASE: RI/FS, RA, RA(O), LTM

PROPOSED PLAN

Land use controls are necessary for the site. Three five year reviews are planned. The final two five year reviews, cap maintenance, and fence maintenance were included in the LTM estimate.

Annual groundwater monitoring is included for the first five year review period in order to demonstrate the effectiveness of the remedy.

RSA-052
INACTIVE MUNITIONS DEMIL & DISPOSAL AREA

SITE DESCRIPTION

RSA-52 is located in the central part of RSA west of the MSFC West Test Area (the Saturn 5 Test Stand) and Dodd Road. The unit is bounded by Wheeler National Wildlife Refuge to the northwest and south. This unit occupies approximately 63 acres and is fenced. This site is within TA-1 active missile test range. It was used in the 1940s and 1950s as a disposal (open burn/open detonation) site for chemical munitions, including mustard components and lewisite agents. Disposal operations were conducted in the trenches and on the land surface. Records show that over 1 million chemical and white phosphorus rounds were disposed of at this site. Approximately twenty-five trenches were identified based on a geophysical survey. The trench lengths range from 275 to 650 feet long. Ordnance and metal fragments are evident at the surface throughout the site. The site was fenced in 2001.

Review of the RSA-149 groundwater data indicates that contaminants observed in springs to the south, previously associated with RSA-52, are consistent with upgradient sources. Based on this information, the relative risk for this site will be revised from high to medium.

The site soils are contaminated with high levels of metals. Vials from Chemical Agent Identification Sets (CAIS) have been found at this site.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-149
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 63
RRSE RATING: High
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, CWM
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, LTM

PROPOSED PLAN

Additional RI/FS work is needed to delineate the increased site area. The RI work includes directional drilling to evaluate groundwater sourcing and characterization of additional trenchings found during previous RI work. A 7.5 acre geotextile and soil cap will be constructed (which will require UXO construction support) and maintained over the trench area. Land Use Controls will be required. The area is within an active range (TA-1). Three 5 year reviews are planned. Current data indicates that there are source materials originating from this site. Therefore, annual groundwater monitoring for the first 5 year period is planned. Subsequent sampling will be based on the first 5 year data set.

RSA-053
INACTIVE SANITARY & INDUSTRIAL LANDFILL

SITE DESCRIPTION

RSA-53 is a closed unlined landfill located near the geographical center of RSA, east of RSA-10, north of Huntsville Spring Branch, west of Patton Road, and south of Mills Road. The site is bounded by the Wheeler Wildlife Refuge to the south. The landfill is approximately 48 acres and is comprised of trenches and pits that were used to dispose of industrial and sanitary wastes. It was active from 1963 to 1973 and received household, administrative, sanitary, and industrial wastes. In the northern area of the site are several inactive waste oil pits and a suspected pesticide burial pit. An ~2 feet thick soil layer covers the refuse in most of the trenches. The site fencing was completed in 2001.

Soil and groundwater contamination includes VOCs (primarily chlorobenzene), SVOCs, metals, and residual pesticides. The bulk of the contamination is due to former DDT manufacturing processes. The original RSA-053 southern site boundary was included in the DDT Migration Abatement Program conducted from 1977 to 1982. This area will be covered by the planned Integrator OU as noted in the proposed plan below.

Pesticides were excavated from the site and placed in disposal cells at RSA-107. It appears that the southern portions of the trenches may be inundated by groundwater on a seasonal basis.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-148
TYPE CODE: LF
TYPE NAME: Landfill
SITE ACRES: 47.9
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN:
Metals, Pesticides, SVOC, VOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, RA(O), LTM

PROPOSED PLAN

Remaining RI/FS work will be completed to document releases from the source areas and delineate additional sources within the site. The remaining RI/FS work is currently negotiated under Task Order #21. In situ treatment of the estimated 4 acre hot spot area and a 43 acre soil cap (over the remainder of the site) will be constructed. The primary purpose of the soil cap and grading is to improve drainage and cover any exposed waste material. Land use controls will be implemented. LTM includes fence & cap maintenance. Five 5 year reviews are planned. The final 4 five year reviews will be included in LTM. Annual groundwater monitoring for the first 5 year period will be conducted. Subsequent monitoring will be based on first period results.

RSA-054
INACTIVE SANITARY & INDUSTRIAL LANDFILL

SITE DESCRIPTION

RSA-54/55 is a single landfill comprising 33 acres in the central portion of RSA. This inactive, closed landfill was used during the 1960s and 1970s for disposal of household, administrative, and industrial waste. Wastes were disposed of in trenches that were later covered with a thin layer of soil. Wastes containing DDT were buried at various locations in the landfill between 1968 and 1973. These wastes were later excavated and moved to the DDT Waste Soils Landfill at RSA-107. The site was fenced in 2001.

Pesticides were detected in the soil and chlorobenzene was detected in the groundwater.

Since RSA-054 and 055 are made up of one landfill, it will be funded under 054 and 055 will be considered RC in AEDB-R.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: LF
TYPE NAME: Landfill
SITE ACRES: 33
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Pesticides, VOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Additional RI/FS work will be completed to delineate surface soil contamination and VOCs source. Soil relocation is expected from old RSA-55 south area (approx 6 acres) and consolidation into old RSA-54 north area. The area south of Fowler will then be used by the installation for building construction. This north area (approx 27 acres) will then be RCRA capped (13 acres) and the rest asphalt capped (14 acres). The facility desires to use this north area as parking area. Five 5 year reviews are planned. The final four 5 year reviews will be included in LTM. Annual monitoring will be conducted for the first 5 years. Subsequent monitoring will be based on first 5 year results.

RSA-056
CAPPED ARSENIC WASTE PONDS-SOUTH

SITE DESCRIPTION

RSA-56 is a 6 acre area, located in the east-central part of the arsenal, north of Viper Road, west of Meteorology Road, and east of Calibration Road. It was an open, unlined surface impoundment that received arsenic-contaminated industrial waste sludge and wastewater from lewisite manufacturing activities in the early 1940s. In the 1960s, the lagoons received demo debris from the lewisite manufacturing facilities.

Due to a Notice of Violation issued in 1992 from ADEM for high levels of arsenic in a bordering stream, a 6 acre area was capped with compacted clay in 1995.

High levels of arsenic were found in the soils and sediment. The site was fenced and soil cap was extended in 2001 to cover the entire contaminated area.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: SI
TYPE NAME:
Surface Impoundment/ Lagoon
SITE ACRES: 6.25
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RA
FUTURE IRP PHASE:
RA(O), LTM

PROPOSED PLAN

Closure sampling and documents will be completed. The PP/ROD for this site will be completed with RSA-122 and RSA-139. The current caps at RSA-56 and RSA-139 are clay caps. Data suggests that the these caps may not be adequate for final remedy. Under the RSA-122 investigation, data are being collected to demonstrate the effectiveness of the cap with regard to protection of groundwater. Should that be confirmed, changes in the cap or side wall protection may be required (this action is not costed out in current CTC). LUC and LTM (cap and fence maintenance) will be required. Three 5 year reviews are planned and the final two will be included in LTM. Annual monitoring for first 5 year period will be conducted. Subsequent period sampling will be based on first period results.

RSA-057
INACTIVE ARSENIC WASTE LAGOON-EAST

SITE DESCRIPTION

RSA-57 is an 8 acre site, located in the east-central part of the arsenal, west of Patton Road and south of Martin Road and was designed as a surface impoundment, but was also used as a former lewisite production waste disposal area. Lewisite raw materials were disposed of at an acetylene sludge lagoon (currently bermed on three sides) and in a smaller arsenic sludge lagoon to the northwest. Low levels of arsenic and VOCs were detected in the groundwater. Based on site operational history it is believed that the VOCs originate from other areas - not RSA-57. The RSA-147 groundwater investigation will clarify the source so necessary source remediation can be undertaken.

Arsenic and mercury are the primary contaminants in the soil.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 8
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RD, RA
FUTURE IRP PHASE:
RC - 2006

PROPOSED PLAN

RI/FS report is currently being written. It is believed that approximately 2,000 cy of contaminated soil will be excavated and stabilized on-site for off-site non-hazardous disposal.

RSA-058

INACTIVE CLOSED RUBBLE FILL & WASTE PILE

SITE DESCRIPTION

RSA-58 is ~ 32 acres and is located east of Patton Road. McDonald Creek and Huntsville Spring Branch border it on the east and south, respectively.

This landfill received incineration ash from demilitarization operations, rubble (e.g., concrete blocks and slabs, tires, 55-gallon drums, 5-gallon cans, metal debris), damaged PCB transformers and building materials from a nearby Olin DDT manufacturing site. The site was fenced in 2001.

Surface water and groundwater from this site drain into the Wheeler Wildlife Refuge. Both Huntsville Spring Branch and McDonald Creek are main drainage channels for the city of Huntsville.

SVOCs, VOCs, metals and pesticides were found in the soil and sediments.

STATUS

SURFACE OU: OU-7
GW SITE #: RSA-145
TYPE CODE: LF
TYPE NAME: Landfill
SITE ACRES: 32
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, Pesticides, Explosives
MEDIA OF CONCERN:
Surface & Subfurface Soil, Sediment, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, RA(O), LTM

PROPOSED PLAN

Additional RI/FS work will be completed to delineate three hot spots and creek sediment contamination and to address increased acreage. Soil removal (~16,000 cy) with dewatering and chemical stabilization is expected for pesticide hot spots. Sheet piling for erosion control wil be plaved along McDonald Creek and Huntsville Spring Branch. Unable to cap and dewater based on site geology - year round wetlands area and floodplain. An in situ injection (peroxide) in groundwater for chlorobenzene as secondary source material will be performed at RSA-58. Five 5 year reviews are planned and the final four will be included in LTM. Annual monitoring is planned for the first 5 year period. Subsequent period monitoring will be based on first period results.

RSA-059
INACTIVE CLOSED CONSTRUCTION RUBBLE FILL

SITE DESCRIPTION

RSA-59 is located in the central portion of RSA, south of Mills Road, and west of Patton Road. It is bounded on the north, east, and south sides by wetlands. RSA-59 is a closed unlined landfill previously used for disposal of rubble, construction debris (primarily railroad ties), sanitary and industrial waste. It was intermittently active from the late 1940s to the mid-1970s. Originally, the site was a fill/borrow area for early construction activities. A thin layer of soil covers the landfilled waste and the site is well vegetated with grasses, small trees, and brush. The site has not been capped and no remediation has occurred.

During recent investigations, the size was determined to be greater than the original 12 acres, but the entire landfill has not been delineated. The site was partially fenced in 2001. The southeastern boundary could not be fenced due to wetland nature of lower area.

Low concentrations of VOCs were detected in groundwater, and a coal disposal area (likely source of PAHs) was discovered.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: LF
TYPE NAME: Landfill
SITE ACRES: 11.8
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
VOCs, PAHs, Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Additional RI/FS work will be completed to delineate the landfill. Relocate fill (2,200 cy) in SW lowland (lower 5 acre area) to high ground on the NW (upper 10 acres). A impermeable cap will then be constructed over the consolidated 10 acre area. Land use controls will be implemented. Fencing is also included for the capped area. LTM for fencing and cap maintenance will be included. Five 5 year reviews are planned and final four are included in LTM. Annual monitoring for the first 5 year period will be conducted. Subsequent monitoring will be based on first period results.

RSA-060
INACTIVE SANITARY & INDUSTRIAL LANDFILL

SITE DESCRIPTION

RSA-60 is a closed unlined landfill located near the geographic center of RSA, southeast of RSA-53, north of the Huntsville Spring Branch, and south of Mills Road. It is downgradient of the former Olin pesticide manufacturing plant. A large portion of the site is within the Wheeler National Wildlife Refuge. The landfill is approximately 33 acres. This site consists of several covered disposal unlined trenches, running northeast-southwest, which were used for sanitary and industrial waste disposal. Pesticides (off-spec products from the Olin manufacturing facility) were also buried throughout the site.

Soil is contaminated with VOCs (primarily chlorobenzene), SVOCs , metals and pesticides including DDD, DDE and DDT. These same pesticides are also present in sediments.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-148
TYPE CODE: LF
TYPE NAME: Landfill
SITE ACRES: 33
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, Pesticides
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, RA(O), LTM

PROPOSED PLAN

Remaining RI/FS work will be completed to document releases from the source areas and delineate additional sources within the site. The remaining RI/FS work is currently negotiated under Task Order #21. An excavation of approximately 1,700 cubic yards is anticipated. Stabilization of the soil will be required to meet LDR requirements. Current information suggests trenches may be inundated with water, therefore capping will not be effective. Some regrading activity will be benefitial. In situ treatment (using oxidants) will be performed on the remaining hot spots. LUC and five 5 year reviews are planned. The final four 5 year reviews will be part of the LTM estimate. Annual monitoring for the first 5 year period will be conducted. Subsequent monitoring will be based on first period results.

Sediment on the southern boundary of RSA-060 will be addressed in the anticipated Integrator OU along this segment of Huntsville Spring Branch.

It is the Army's position that the southern wetland area should properly be part of Triana-Olin DDT abatement area - this was within the original HSB (Huntsville Spring Branch) basin that was diverted to new southern channel. There is a large amount of DDT- contaminated sediment deposited as a result of Olin manufacturing processes, that may eventually become an Army responsibility to remediate. Costs for this effort could exceed $60 million.

(See letters in the Contamination Assessment section.)

RSA-061
INACTIVE MUNITIONS DEMIL & DISPOSAL AREA

SITE DESCRIPTION

RSA-61 is an inactive disposal site that was used in the 1940s and 1950s. The site is located in the central portion of RSA, east of Dodd Road, and north of Huntsville Spring Branch. It was used as a demilitarization and disposal site for white phosphorus and chemical munitions. The materials were incinerated in disposal trenches, covered, and the residues remain in place. The trenches were marked with vertical railroad ties and concrete posts and appear devoid of undergrowth. Twenty trenches have been identified through a geophysical survey. Ordnance and metal fragments are evident at the surface throughout the site.

UXO is present at the site.

The site is contaminated with high levels of metals. VOCs, SVOCs and CWM breakdown products are also present. During the investigation, the size of the site of RSA-061 was increased to 40 acres. It was also determined that RSA-061 and 062 are one disposal area, and will be addressed as RSA-061. This brought the site size to 74 acres with 23 trenches. (RSA-062 will be listed as RC in AEDB-R.) Area fencing was completed (in 2001) with trench marking as a TCRA.

STATUS

SURFACE OU: OU-8
GW SITE #: RSA-148
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 74
RRSE RATING: Medium
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, CWM, Explosives, SVOCs, VOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Additional RI/FS work will be completed in order to fully outline all of the trenches and burn areas. This includes directional drilling to evaluate sourcing to groundwater. A 4 acre geotextile/soil cap will be constructed over the trenches which will require UXO construction support. LTM for trench marker, fence and cap maintenance are planned. Land use controls will be implemented. Five 5 year reviews are planned. The final four 5 year reviews will be included in LTM. Annual monitoring for the first 5 year period will be conducted. Subsequent monitoring will be based on first period results.

This site is within the TA-1 active missile test range. Therefore, any remedial work for munitions-related contaminants will be deferred to range closure per the Military Munition Rule.

RSA-063
INACTIVE CHEMICAL MUNITIONS STORAGE AREA

SITE DESCRIPTION

RSA-63 is located near southeastern boundary of OU-17, west of Dodd Road, north of Test Area 1 Centerline Road, and south of Huntsville Spring Branch. RSA-63 is a 7 acre, inactive chemical disposal site used to dispose of munitions contaminated with mustard gas and lewisite (1940-50s) and lies within the active firing zone for Test Area 1. Records indicate two cement coffins filled with chemical munitions disposed of in two trenches, which are approximately 265 and 340 feet in length. The trenches were covered with 2 to 4 feet of clean backfill. The site was fenced in 2001.

Metals and CWM breakdown products were detected in the soil.

STATUS

SURFACE OU: OU-17
GW SITE #: RSA-149
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 6.9
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, CWM
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, RA(O), LTM

PROPOSED PLAN

Additional RI/FS work will be conducted to include directional borings to support groundwater sourcing determination and to complete non-trench area characterization. A LUC will be implemented. LTM including fence maintenance will be implemented. Three 5 year reviews are planned with the final two being included in LTM. Annual monitoring for the first 5 year period will be conducted. Subsequent monitoring will be based on first period results.

RSA-064
INACTIVE MUNITIONS DEMIL & DISPOSAL AREA

SITE DESCRIPTION

RSA-64 is located in the southeastern part of the facility, north of Buxton and Sheffield Roads, and west of the Preflight Evaluation Lab, Building 7290. The site is an inactive mustard gas disposal area. The site was active in 1955 and 1956 and occupies less than one acre. Approximately 350 mustard gas shells were demilitarized at the site. Currently, this unit is covered with vegetation, including small trees. The area is fenced (2001), posted, and restricted.

Preliminary sampling results indicate metals in the soils. This site may be a source of chlorinated solvent that has been found in area groundwater.

STATUS

SURFACE OU: OU-12
GW SITE #: RSA-146
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 0.3
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals, CWM
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Additional RI/FS work will be necessary to determine groundwater sourcing. Directional drilling will be used during the RI effort. Current data suggests this area could possibly be a source area to groundwater. CWM, real-time monitoring will be required. The area will be deforested and a soil cover constructed to protect groundwater. Land use controls will be implemented. Three 5 year reviews are planned. Annual monitoring will be conducted during the first 5 years. LTM will include fence and cap maintenance and the final two 5 year reviews.

RSA-065
FORMER CHEMICAL DRUM STORAGE AREA

SITE DESCRIPTION

RSA-65 is located in the southern part of the Arsenal south of Buxton Road within the floodplain of the Tennessee River and is located within an operational range. RSA-65 is a 136-acre, fenced area used for above ground drum storage for chemical warfare agents, including lewisite and mustard gas during the 1940s and 1950s. The chemical materials were shipped off-post for disposal, or were demilitarized at RSA. The site is generally flat with numerous rectangular storage cells, with each cell occupying ~200 square feet. The storage cells create a grid pattern over the site and are clearly visible on aerial photographs. Water has been impounded on the site by beavers resulting in the development of marshy areas. The site was fenced in 2001.

Low levels of metals were detected in surface water during the SI.

STATUS

SURFACE OU: OU-15
GW SITE #: RSA-152
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: 136
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface Soil, Sediment, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, RA(O), LTM

PROPOSED PLAN

Based on PA/SI data, initiate RI/FS to include aerial geophysical survey. Aerial geophysics is required to identify drums and other anomalies that can not be detected via land-based methods due to the wetland nature of the area. Further investigation will focus on contaminant transport via sediment and surface water. Land use controls will be implemented. Three 5 year reviews are planned with the final two 5 year reviews being conducted under LTM. Annual, multi-media monitoring will be conducted during the first 5 year review period. Subsequent monitoring will be based on the findings of the first 5 year sampling.

Evaluate area for potential integrator operable unit development. Costs for the evaluation and development of the integrator operable unit are included as global tasks within the CTC for the groundwater sites.

RSA-066
INACTIVE ASH DISPOSAL SITE & DEMIL AREA

SITE DESCRIPTION

RSA-66 is a closed unlined waste disposal and demolition area located on the southern portion of RSA, south of Buxton Road, and within one-half mile of the Tennessee River. It is approximately 21 acres and is located within an operational range. The landfill portion (2 acres) of the site was active from the 1950s to the late 1970s, and was used as a disposal area for incineration ash, residue, and unsalvageable metal debris (e.g., rocket motor parts, crushed drums) from the open burning operations at the OB/OD grounds (RSA-14). The site was additionally used for demilitarization of chemically filled ordnance. The site was fenced in 2001.

A large amount of UXO is present on site.

SVOCs, VOCs and metals have been found in the groundwater. VOCs, metals, and explosives have been found in the soil.

STATUS

SURFACE OU: OU-15
GW SITE #: RSA-152
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 21
RRSE RATING: Medium
OE: Yes
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, RA(O), LTM

PROPOSED PLAN

Based on PA/SI data, initiate RI/FS to include aerial geophysical survey and remote drilling due to the abundance and density of UXO. Further investigation will focus on contaminant transport via sediment and surface water. Land use controls will be implemented. Three 5 year reviews are planned with the final two 5 year reviews being conducted under LTM. Annual, multi-media monitoring will be conducted during the first 5 year review period. Subsequent monitoring will be based on the findings of the first 5 year sampling.

Evaluate area for potential integrator operable unit development. Costs for the evaluation and development of the integrator operable unit are included as global tasks within the CTC for the groundwater sites.

RSA-067
FORMER CHEMICAL DRUM STORAGE AREA

SITE DESCRIPTION

RSA-67 is an inactive 45-acre drum storage area used in the 1940s and 1950s for aboveground storage of mustard gas. Originally, the site was separated into storage cells by unlined earthen berms, rail car tracks, and/or trails. RSA-67 is located in the southern part of RSA in OU-15, adjacent to another chemical agent storage area, RSA-65 and within an operational range. Most of the northern part of this area is wooded. The majority of the unit is inundated with water.

The site was fenced in 2001.

A phosgene container was discovered at the site.

STATUS

SURFACE OU: OU-15
GW SITE #: RSA-152
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: 45
RRSE RATING: Medium
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, SVOC
MEDIA OF CONCERN:
Surface Soil, Sediment, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, LTM

PROPOSED PLAN

Based on PA/SI data, initiate RI/FS to include aerial geophysical survey. Aerial geophysics is required to identify drums and other anomalies that can not be detected via land-based methods due to the wetland nature of the area. Further investigation will focus on contaminant transport via sediment and surface water. Land use controls will be implemented. Three 5 year reviews are planned with the final two 5 year reviews being conducted under LTM. Annual, multi-media monitoring will be conducted during the first 5 year review period. Subsequent monitoring will be based on the findings of the first 5 year sampling.

Evaluate area for potential integrator operable unit development. Costs for the evaluation and development of the integrator operable unit are included as global tasks within the CTC for the groundwater sites.

RSA-068
INACTIVE TOXIC CHEMICAL DISPOSAL AREA

SITE DESCRIPTION

RSA-68 is located in OU-15 in the southern portion of the arsenal, less than 1 mile east of the Tennessee River and within an operational range. It is ~54 acres with wetlands to the north and Igloo Pond to the east. RSA-68 was within the Gulf Chemical Warfare Depot during the 1940s and was used as a demilitarization and disposal area for explosives. From the 1950s to 1980, the site was active as a disposal area for toxic waste and laboratory chemicals. The majority of the chemicals were disposed of in two trenches and buried along the eastern and southern boundaries. The site was fenced in 2001.

During a test pit excavation, metal waste and buried ordnance were encountered. A variety of chemicals were dumped in open trenches and treated in open pits. UXO is present at the site. VOCs, metals, pesticides and explosives were found in the soil. VOCs, metals, explosives and CWM were found in the groundwater. VOCs, metals and CWM were found in the surface water and sediment.

STATUS

SURFACE OU: OU-15
GW SITE #: RSA-152
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 54
RRSE RATING: Medium
OE: Yes
CONTAMINANTS OF CONCERN:
VOCs, Metals, Explosives, Pesticides, CWM
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, RA(O), LTM

PROPOSED PLAN

Expand RI/FS to include aerial geophysical survey. Aerial geophysics is required to identify drums and other anomalies that can not be detected via land-based methods due to a variety of obstacles (e.g. the wetland nature of the area, surface UXO, tree cover, subsurface nature of disposal). Further investigation will focus on contaminant transport via sediment and surface water. RD/RA decisions will be made based on results of the additional investigation. Land use controls will be implemented.

Three 5 year reviews are planned with the final two 5 year reviews being conducted under LTM. Annual, multi-media monitoring will be conducted during the first 5 year review period. Subsequent monitoring will be based on the findings of the first 5 year sampling.

Evaluate area for potential integrator operable unit development. Costs for the evaluation and development of the integrator operable unit are included as global tasks within the CTC for the groundwater sites.

RSA-069
FORMER CHEMICAL DRUM STORAGE AREA

SITE DESCRIPTION

RSA-69 consists of an inactive mustard storage area in the southern portion of the arsenal along the eastern margin of the floodplain of the Tennessee River within an operational range. It was used for the storage of mustard canisters on bare ground during the 1940s and 1950s. The mustard was removed and shipped off-site and/or demilitarized at OU-15. RSA-69 is wooded and the berms for the storage cells are visible. Areas of the site are usually inundated with water. The site was fenced in 2001.

VOCs and CWM breakdown product were found in the groundwater, but the source cannot be conclusively attributed to this site.

Currently, there is no distinction between RSA-69 and RSA-70. Therefore, site RSA-070 will be listed as RC in AEDB-R, and any additional needed action will be addressed under RSA-069. The storage area now occupies approximately 80 acres.

STATUS

SURFACE OU: OU-15
GW SITE #: RSA-152
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: 80
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
None Detected
MEDIA OF CONCERN:
None
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, RA(O), LTM

PROPOSED PLAN

Based on PA/SI data, initiate RI/FS to include aerial geophysical survey. Aerial geophysics is required to identify drums and other anomalies that can not be detected via land-based methods due to the wetland nature of the area. Further investigation will focus on contaminant transport via sediment and surface water. Three 5 year reviews are planned with the final two 5 year reviews being conducted under LTM. Annual, multi-media monitoring will be conducted during the first 5 year review period. Subsequent monitoring will be based on the findings of the first 5 year sampling.

Evaluate area for potential integrator operable unit development. Costs for the evaluation and development of the integrator operable unit are included as global tasks within the CTC for the groundwater sites.

RSA-083
INACTIVE SPRAY PAINT BOOTH SUMP

SITE DESCRIPTION

This site consists of a sump associated with a former water-curtain paint operation located at Building 7344 in the northwest section of the formerRedstone Arsenal Rocket Engine Facility North Plant. Large missile casings were painted at this building. The unit collected excess paint mist emissions from missile spray painting operations. The water-curtain trapped excess paint mist. Water was re-circulated through the sump/ water-curtain during the painting operation. Paint that collected on the surface of the sump was removed and contained in drums. Supernatant was discharged to a septic tank and field drainage system.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 7.8
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals, VOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O)

PROPOSED PLAN

The RI/FS sampling and reports will be completed, followed by sump and soil removal (200 cy, septic tank & drain field). Current data suggests the site contains principle threat source material for contaminants; therefore, an in-situ treatment is included. One 5 year review is planned. Annual groundwater monitoring will be conducted during this 5 year review period.

RSA-087
INACTIVE PROPELLANT WASTES STORAGE PAD

SITE DESCRIPTION

RSA-87, -88, -89 were all used for the same purpose. These sites are located in the east central portion of the arsenal at the former Redstone Arsenal Rocket Engine (RARE) Facility North Plant. These units provided temporary waste storage for plant waste generation points either on concrete pads or as designated spaces on asphalt for 1.3 explosive class waste propellants. Prior to RARE North Plant operations, these areas were part of Redstone Ordnance Plant burster and assembly lines. The larger area representing these processes is being evaluated under the RSA-146 PTSM investigation. The areas investigated as RSA-87, -88, and -89 represent the waste storage pads associated with specific activities related to the solid rocket testing research only.

RSA-87 is located at Bldg 7368 and consists of two concrete pads (200 sf) which were used to store drummed cuttings from finished perchlorate propellant. New sheds and storage pads were added adjacent to the older pads at a later date. Although the groundwater underneath the pads is contaminated with TCE, this site is not the source area. A former degreaser, located at Bldg 7368 (RSA-95), appears to be the source of the TCE contamination.

A second source of perchlorate has been identified to the northwest of RSA-87 at RCRA sites RSA-85 and RSA-86. Activities conducted at RSA-85 and RSA-86 were identical to those at RSA-87; therefore, the sites should be treated accordingly.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: -
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Perchlorates
MEDIA OF CONCERN:
Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RD
FUTURE IRP PHASE:
RA, RA(O), LTM

PROPOSED PLAN

TCE contamination is also present in the groundwater at the site originating from RSA-95. Therefore, the remediation must be sequenced with an intial dissolved-phase carbon injection for perchlorate followed by a chemical oxidation for TCE at RSA-95. Remediation should occur at RSA-87 simutaneously with RSA-85 and RSA-86; therefore, it will be requested that RSA-85 and RSA-86 be moved from RCRA to the CERCLA program.

Three 5 year reviews are planned. Annual monitoring with MNA will be conducted during the first 5 years. Subsequent monitoring will be based on the results of the first five year results. Final remedial clean up action levels for perchlorate are pending DOD/EPA resolution.

RSA-088
INACTIVE PROPELLANT WASTES STORAGE PAD

SITE DESCRIPTION

RSA-87, -88, -89 were all used for the same purpose. These sites are located in the east central portion of the Arsenal at the former Redstone Arsenal Rocket Engine Facility North Plant. These units provided temporary waste storage for plant waste generation points either on concrete pads or as designated spaces on asphalt for 1.3 explosive class waste propellants. Prior to RARE North Plant operations, these areas were part of Redstone Ordnance Plant burster and assembly lines. The larger area representing these processes is being evaluated under the RSA-146 PTSM investigation. The areas investigated as RSA-87, -88, and -89 represent the waste storage pads associated with specific activities related to the solid rocket testing research only.

RSA-88 is located at Building 7625 and consists of a concrete pad (200sf) which was used to store drummed cuttings from finished perchlorate propellant. A newer shed and pad were added on at a later date. This location rather than the degreaser in Bldg. 7625 (RSA-94) appears to be the source of the TCE and perchlorate plumes in this area.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: -
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
VOCs, Perchlorate
MEDIA OF CONCERN:
Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RD
FUTURE IRP PHASE:
RA, RA(O)

PROPOSED PLAN

Proposed Plan and ROD will be completed. Based on current bench-scale study data, the planned remedy for this site is in-situ bioremediation (dissolved-phase carbon injection). A pilot study using the selected remedy is planned for RSA-88. If the study/action is deemed successful, it will be used at similar sites. TCE treatment of the groundwater RSA-88 at will be adressed under the RSA-146 site. Final remedial clean up action levels for perchlorate are pending DOD/EPA resolution. One 5 year review is planned. Annual monitoring will be required during the 5 year review period.

RSA-089
INACTIVE PROPELLANT WASTES STORAGE PAD

SITE DESCRIPTION

RSA-87, -88, -89 were all used for the same purpose. These sites are located in the east central portion of the Arsenal at the former Redstone Arsenal Rocket Engine Facility North Plant. These units provided temporary waste storage for plant waste generation points either on concrete pads or as designated spaces on asphalt for 1.3 explosive class waste propellants. Prior to RARE North Plant operations, these areas were part of Redstone Ordnance Plant burster and assembly lines. The larger area representing these processes is being evaluated under the RSA-146 PTSM investigation. The areas investigated as RSA-87, -88, and -89 represent the waste storage pads associated with specific activities related to the solid rocket testing research only.

RSA-89 is located at former Building 7726 and consists of an asphalt pad (200sf) which was used to store drummed cuttings from finished perchlorate propellant. Although the groundwater underneath the pads is contaminated with TCE, this site is not the source area. A former degreaser, located at Building 7726 (RSA-97), appears to be the source of the TCE contamination.

The groundwater contamination will be addressed as part of the remedial activities for RSA-97.

The RRSE is currently listed as 2A. The RRSE MPF will be changed to 'potential' not 'evident.' This should reduce the RRSE score to '3A Low.'

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: -
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Perchlorate
MEDIA OF CONCERN:
Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RD
FUTURE IRP PHASE:
RA, RA(O), LTM

PROPOSED PLAN

RI/FS report is currently being drafted. Results indicate that treatment of both subsurface soils and groundwater is required for perchlorate. TCE contamination is also present in the groundwater at the site originating from RSA-97. Therefore, the remediation must be sequenced with an intial dissolved-phase carbon injection for perchlorate followed by a chemical oxidation for TCE at RSA-97. Three 5 year reviews are planned. Annual monitoring with MNA will be conducted during the first 5 years. Subsequent monitoring will be based on the results of the first five year results. Final remedial clean up action levels for perchlorate are pending DOD/EPA resolution.

RSA-094
CHLORINATED-SOLVENT DISTILLATION UNIT 1

SITE DESCRIPTION

RSA-94, -95, -96, -97 & -98 were solvent degreasing operations including stills used for distillation and recovery of solvent from vapor degreasers in the former Thiokol plants. The degreasing agent most commonly used at these units was TCE. During vapor degreasing for the rocket motors, the solvent fluid was volatized with heating coils, circulated through the motors, condensed with cooling coils, reconditioned through the distillation unit, and re-circulated through the system. Each degreaser unit was set inside a concrete pit and was equipped with a sump pump to recover solvent during operations.

Within RSA-94, the degreasing sump is located in the central portion of Bldg 7625. The vapor degreaser was installed in 1981. It appears that there have been no significant TCE or perchlorate releases from this site. The TCE and perchlorate plumes in this area appear to originate from RSA-88 (storage pad associated with Bldg 7625); therefore, the reports for these sites will be combined to provide a comprehensive conceptual site picture.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: -
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
VOCs
MEDIA OF CONCERN:
Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

RI/FS is currently being drafted. An NFA for this site is anticipated.

RSA-095
CHLORINATED-SOLVENT DISTILLATION UNIT 2

SITE DESCRIPTION

RSA-94, -95, -96, -97, & -98 were solvent degreasing operations including stills used for distillation and recovery of solvent from vapor degreasers in the former Thiokol plants. The degreasing agent most commonly used at these units was TCE. During vapor degreasing for the rocket motors, the solvent fluid was volatized with heating coils, circulated through the motors, condensed with cooling coils, reconditioned through the distillation unit, and re-circulated through the system. Each degreaser unit was set inside a concrete pit and was equipped with a sump pump to recover solvent during operations.

RSA-95 activities were centered around the southwest wing of Bldg 7368. Based on new archive search information, it was determined that buildings 7370, 7369, 7359, 7363, 7373, and other smaller buildings were a part of the overall process conducted in this area. Limited analytical data also suggest these areas to be sourcing to groundwater and should be addressed as part of the RSA-95 surface media site.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: -
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
VOCs
MEDIA OF CONCERN:
Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RD
FUTURE IRP PHASE:
RA

PROPOSED PLAN

Additional RI/FS investigation will be necessary to characterize the nature and extent of this expanded area. Current results indicate that treatment of both subsurface soils and groundwater will be required for TCE and perchlorate in this newly defined RSA-95 area. TCE NAPL is present at the site. Perchlorate contamination is also present in the groundwater at the site originating principally from RSA-87. Therefore, the remediation must be sequenced with an initial dissolved-phase carbon injection for perchlorate followed by a chemical oxidation for TCE that will address the NAPL in soil. DNAPL secondary source term in the saturated zone will be addressed within groundwater site RSA-146. While some localized reduction of the perchlorate in groundwater may be achieved at this site, subsequent remedial alternatives for perchlorate in groundwater will be addressed in the groundwater site. Three 5 year reviews are planned. Annual monitoring with MNA will be conducted during the first 5 years. Subsequent monitoring will be based on the results of the first five year results.

RSA-096
CHLORINATED-SOLVENT DISTILLATION UNIT 3

SITE DESCRIPTION

RSA-94, -95, -96, -97, & -98 were solvent degreasing operations including stills used for distillation and recovery of solvent from vapor degreasers in the former Thiokol plants. The degreasing agent most commonly used at these units was TCE. During vapor degreasing for the rocket motors, the solvent fluid was volatized with heating coils, circulated through the motors, condensed with cooling coils, reconditioned through the distillation unit, and re-circulated through the system. Each degreaser unit was set inside a concrete pit and was equipped with a sump pump to recover solvent during operations.

RSA-96 operations (case preparation) centered around Building 7740. The degreaser sump is located in the northwest corner of the building.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: -
RRSE RATING: Medium
OE No
CONTAMINANTS OF CONCERN:
VOCs
MEDIA OF CONCERN:
Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RD
FUTURE IRP PHASE:
RA, RA(O), LTM

PROPOSED PLAN

RI/FS report is currently being drafted. Results indicate that treatment of both subsurface soils and groundwater is required for TCE. NAPL is present at the site in groundwater and in soils. Perchlorate contamination is also present in the soil and groundwater at the site. Therefore, the remediation must be sequenced with an intial dissolved-phase carbon injection for perchlorate followed by a chemical oxidation for TCE that will address the NAPL in soil. DNAPL secondary source term in the saturated zone will be addressed within groundwater site RSA-146. While some localized reduction of the perchlorate in groundwater may be achieved at this site, subsequent remedial alternatives for perchlorate in groundwater will be addressed in the groundwater site. Three 5 year reviews are planned. Annual monitoring with MNA will be conducted during the first 5 years. Subsequent monitoring will be based on the results of the first five year results.

RSA-097
CHLORINATED-SOLVENT DISTILLATION UNIT 4

SITE DESCRIPTION

RSA-94, -95, -96, -97, & -98 were solvent degreasing operations including stills used for distillation and recovery of solvent from vapor degreasers in the former Thiokol plants. The degreasing agent most commonly used at these units was TCE. During vapor degreasing for the rocket motors, the solvent fluid was volatized with heating coils, circulated through the motors, condensed with cooling coils, reconditioned through the distillation unit, and re-circulated through the system. Each degreaser unit was set inside a concrete pit and was equipped with a sump pump to recover solvent during operations.

RSA-97 is located on the northwest wing of former Bldg 7726. NAPL (mainly TCE) was also detected in subsurface soils at RSA-97. The underlying groundwater also contains perchlorate.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: -
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
VOCs
MEDIA OF CONCERN:
Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

RI/FS report is currently being drafted. Results indicate that no remedial actions are required for the treatment of surface media. Based on the concentrations of perchlorate and TCE detected in groundwater, it is believed that land use control will be required.

RSA-098
CHLORINATED-SOLVENT DISTILLATION UNIT 5

SITE DESCRIPTION

RSA-94, -95, -96, -97, & -98 were solvent degreasing operations including stills used for distillation and recovery of solvent from vapor degreasers in the former Thiokol plants. The degreasing agent most commonly used at these units was TCE. During vapor degreasing for the rocket motors, the solvent fluid was volatized with heating coils, circulated through the motors, condensed with cooling coils, reconditioned through the distillation unit, and re-circulated through the system. Each degreaser unit was set inside a concrete pit and was equipped with a sump pump to recover solvent during operations.

RSA-98 operations (case preparation) centered around Building 7346. The degreaser sump is located in the southern portion of the building.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: -
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
VOCs
MEDIA OF CONCERN:
Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

RI/FS Report is currently being drafted. No further action is anticipated at this site.

RSA-099
ABANDONED PLATING SHOP TANKS & SUMPS

SITE DESCRIPTION

This site is located at former Building 7614 in the southeast section of the former Redstone Arsenal Rocket Engine Facility North Plant. It consisted of a dilapidated building with plating tanks and two sumps (one indoor and one outdoor). This former single-story building was ~30 feet long and 15 feet wide. It was used for plating of rocket motor casings. The indoor sump was not equipped with a drain, and was periodically pumped to remove the accumulated wastes. The outdoor sump has no direct connection with Building 7614 plumbing.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 0.02
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Draft NFA RI Report is pending regulatory approval. A PP and ROD will be completed (funded).

RSA-104
ABANDONED ISP WASTE DISCHARGE LINE

SITE DESCRIPTION

This site is also called 'HVA Plant #2 South Area.' This area originally included southern portion of the WWII plant #2 including chlorine plant #2 (subsequently operated by ISP, then Olin DDT manufacturing, packaging, and storage areas), the thionyl chloride plant, HS mustard Lines 5 and 6, IBF operations, the phosgene plant, ancillary buildings, and associated drainage areas. The 73 acre unit is south of Mills Road and north of Huntsville Spring Branch. Based on historical operations review and archive search RSA-117 (chlorine plant/50% caustic facility) has been expanded to include the full chlorine plant operations. RSA-104 has been realigned to capture the remaining WWII Plant #2 facilities (HS mustard Lines 5 and 6, IBF operations, the phosgene plant, and ancillary buildings).

Potential COPCs include mercury, beryllium and pesticides.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 73
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals, Pesticides
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

The RI/FS has been realigned to focus on process operations identified above. Additional groundwater sourcing investigation is necessary in these newly identified areas. PTSM work will provide data related to the remaining portion of HVA Plant #2 operations. Possible remedial actions may be necessary based on the results of the investigation of the added operation areas and will be included in future revisions as required. Soil removal may be needed.

RSA-109
FORMER CHEMICAL MUNITIONS STAGING AREA

SITE DESCRIPTION

The site is ~10 acres, and is located off a former railroad spur north of Huntsville Spring Branch and west of Dodd Road. The area served as a staging area for chemical munitions awaiting demilitarization at surrounding sites. The site was later used for disposal of construction debris and rubble. This site is within TA-1, an active test missile range area, that is within the Wheeler Wildlife Refuge.

STATUS

SURFACE OU: OU-8
GW SITE #: RSA-149
TYPE CODE: DA
TYPE NAME: Surface Disposal Area
SITE ACRES: 10
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, SVOC, Explosives
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, RA(O), LTM

PROPOSED PLAN

Based on PA/SI results, a RI/FS will be completed to delineate the identified contamination and determine groundwater sourcing. It is believed that groundwater contamination present at the site is a result of upgradient NASA activities.

Land use controls due to the presence of UXO/CWM is required. Three 5 year reviews are planned with the final two reviews being conducted as part of LTM. Annual surface water monitoring will be conducted during the first 5 year review period. The need for subsequent sampling will be determined based on the findings of the initial sampling period. This site is within TA-1 active missile test range. Therefore any remedial work for munitions related contaminants will be deferred to range closure per the MMR.

Sediment on the southern boundary of RSA-109 will be addressed in the anticipated Integrator OU along this segment of Huntsville Spring Branch.

RSA-110
FORMER CHEMICAL DRUM STORAGE AREA

SITE DESCRIPTION

RSA-110 is a 24 acre site located in the south eastern portion of OU-15 within the floodplain of the Tennessee River and within an operational range. The site was used as rail car storage. Rail cars full of chemical ordnance were staged in gravel storage areas waiting to be unloaded. This area was used in the 1940s and 50s.

In 1989, RSA personnel removed most of the building and fire bricks from the site and dismantled several incinerators/ovens used to destroy munitions.

Remains of the gravel storage areas are still visible today. The site is primarily dense brush and wetlands. The site was fenced in 2001.

Much of the site is covered with surface UXO.

The ground surface of the non-wooded portion of the site has a heavy gravel base (up to 1 foot in thickness in places) with scattered areas containing small surface debris. An area of hummocky surface soil covering about 1 acre was identified in the northeastern portion of RSA-110.

Two piles of discarded Dragon rocket motors were found on site. SVOCs and metals were found in the soil. High levels of thiodiglycol and chlorinated solvents (including 1,1,2,2-tetrachloroethane) have been detected in the groundwater.

STATUS

SURFACE OU: OU-15
GW SITE #: RSA-151
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: 24
RRSE RATING: Low
OR: Yes
CONTAMINANTS OF CONCERN:
Metals, SVOCs, CWM
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, LTM

PROPOSED PLAN

Based on PA/SI data, initiate RI/FS to include aerial and land-based (drum disposal area) geophysical surveys to identify anomalous areas. Land use controls will be implemented. UXO construction support is necessary to support proposed actions. Three 5 year reviews are planned. Annual monitoring will be conducted during the first 5 year review period. Subsequent monitoring will be based on the findings of the first 5 year sampling. LTM will include fence maintenance and the final 2 five year reviews.

The area for potential integrator operable unit development will be evaluated. Costs for the evaluation and development of the integrator operable unit are included as global tasks within the CTC for the groundwater sites.

RSA-112
FORMER DEMILITARIZATION & DISPOSAL SITE

SITE DESCRIPTION

RSA-112 is approximately 27 acres and is located in the east central part of the arsenal adjacent to RSA-58, east of Patton Road, south of Martin Road, and northeast of Creek Road. It is in the 100-year floodplain of the Huntsville Spring Branch and surrounded by wetlands. This site is bounded on the west by Corkran Range.

The site was used for demilitarization and disposal of chemical and conventional ordnance. Several disposal trenches and burn pads have been identified on the site. The surface is littered with ordnance and debris.

UXO is present at the site.

RSA-112 and 128 were determined to be one demil area. RSA-128 will be listed as RC in AEDB-R and all needed action will be funded under RSA-112. This brought the site size to 27 acres (fenced). The sites were fenced in 2001.

STATUS

SURFACE OU: OU-7
GW SITE #: RSA-145
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 27
RRSE RATING: Low
OE Yes
CONTAMINANTS OF CONCERN:
Metals, Explosives
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RA, LTM

PROPOSED PLAN

Additional RI/FS will be required due to increased acreage and groundwater sourcing potential. Directional borings will be included in the future investigation. Providing no PTSM is found, land use controls will be implemented. Planned LTM will include fence maintenance and the final two 5 year reviews. A total of three 5 year reviews are planned.

Surface water and sediment boundary of RSA-112 will be addressed in the anticipated Integrator OU along this segment of Huntsville Spring Branch.

RSA-113
INACTIVE DISPOSAL TRENCHES & BURN PITS

SITE DESCRIPTION

RSA-113 is two inactive disposal trenches ~20 feet wide and 300 feet long each, located in the east central portion of arsenal, north of Creek Road, south of Martin Road, and east of Patton Road. Metal debris (e.g., decomposed drums, a rail cart, structural steel) is visible in sections of the uncovered areas of the trenches. The 10 acre area is overgrown with vegetation including brush, briars, and small trees. The site was fenced in 2001.

Ordnance is scattered on the surface throughout the site. UXO is present on the surface.

Metals, explosives and CWM breakdown products were detected in soils.

STATUS

SURFACE OU: OU-7
GW SITE #: RSA-145
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 10.5
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, Explosives, CWM
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Additional RI/FS work will be required due to groundwater sourcing potential. Directional borings will be included in the future investigation. Real-time monitoring for CWM will be required to support investigation activities. A 0.4 acre membrane cap will be placed over the trenches. Land use controls will be implemented due to the presence of OE. Three 5 year reviews are planned. LTM will include cap and fence maintenance and the final two 5 year reviews. Groundwater monitoring may be added in subsequent revisions and CTC estimates if the investigation determines that PTSM is present.

RSA-114
INACTIVE MADKIN MOUNTAIN ROCK QUARRY

SITE DESCRIPTION

RSA-114 is an abandoned limestone rock quarry that is located on the south side of Madkin Mountain, near the geographical center of the arsenal, north of the intersection of Neal Road and Mills Road. The rectangular shaped, water-filled quarry is approximately 4 acres. Approximately 3 acres of the surrounding areas have been added as part of this site. The water level depth varies widely with seasonal fluctuations. After the quarry was closed during the mid-1940s, tons of surplus materials (e.g., soldier gas mask canisters, mustard chemical production plant filters) were disposed in the quarry. Large quantities of debris are currently visible above the water surface with the largest concentration being encompassed in two large piles on the southern side of the quarry. These two piles consist of gas mask canisters and large industrial charcoal canisters. The gas mask canisters and charcoal columns are believed to have been unused. Underwater investigations have indicated the presence of intact, agent configured drums and 4.2 inch mortar rounds.

This site was fenced in 2001.

STATUS

SURFACE OU: OU-4
GW SITE #: RSA-148
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 7
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, UXO (CWM)
MEDIA OF CONCERN:
Surface Soil, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Additional RI/FS work will be completed with Tech Escort/U.S. Army Engineering and Support Center - Huntsville providing construction support for access to quarry bottom and beneath gas mask piles. The investigation-derived waste is expected to be disposed of as a hazardous waste. CWM ordnance and drums will be removed as part of the investigation. No additional remedial actions are planned.

RSA-117
FORMER LIQUID CAUSTIC MFG. PLANT SITE

SITE DESCRIPTION

Based on historical operations review and archive search, RSA-117 (chlorine plant/50% caustic facility) has been expanded to include the full chlorine plant operations. RSA-104 has been realigned to capture the remaining WWII Plant #2 facilities (HS mustard Lines 5 and 6, IBF operations, the phosgene plant, ancillary buildings).

The RSA-117 operations have been demolished, however, the foundations are still evident. RSA-117 occupies ~85 acres, and is located east of Industrial Road, south of Mills Road, and west of Patton Road near the geographic center of RSA. The site is immediately adjacent to RSA-59. The area is vegetated primarily with grass, and the areas north and west of the site are covered by stands of loblolly pine trees.

This area has also been expanded to include RSA-118 which is within the southern drainage area. The former RSA-118 was a former ammonia lagoon used from approximately 1949 to the mid 1980s supporting the ISP, Inc. operations.

Potential constituents in the discharge from the plant included sodium hydroxide, sodium hypochlorite and sodium chloride.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 85
RRSE RATING: Low
UXO RAC: No
CONTAMINANTS OF CONCERN:
Metals, PCBs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Additional RI/FS work is needed to characterize the nature and extent of this revised area. Soil removal (1,000 cy) is planned for possible PCB hot spot removal. Removed soil will be disposed of in accordance with TSCA. Another soil removal of 4,000 cy is anticipated in the former RSA-118 area because of metals contamination which will be disposed of as non-hazardous material. Additional actions may be required based on RI findings.

RSA-122
DISMANTLED LEWISITE MFG. PLANTS SITE

SITE DESCRIPTION

The site ~58 acres is located in the east central part of RSA, north of Viper Road and west of Meteorology Road. RSA-122 was the site of lewisite manufacturing (Plant #2) during the mid-1940s. This area consisted of 4 production lines. Lines 3 and 4 were active while lines 5 and 6 were never operational for the production of Lewisite, however, Line 5 area was used for decon of the one ton containers used for Lewisite storage and transporation. The area also includes an arsenic trichloride manufacturing plant whose waste was discharged to RSA-139. Subsequent development has partitioned the site. It is an active area with Testing, Measurement, and Diagnostic Equipment (Bldg 5435) and other operations. Disposal lagoons associated with this manufacturing area are identified as RSA-56, RSA-57, and RSA-139. Lines 3 and 4 discharged to RSA-56. Lines 5 and 6 were constructed to discharge to RSA-57. Mercury and arsenic contamination have been found in surface and subsurface soils as well as sediments. This is a highly industrialized area on the Arsenal. This site also includes drainage for the entire area south across Mills Rd. ultimately to Huntsville Spring Branch (anticipated Integrator Operable Unit area)

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 58
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN:
Mercury, Arsenic, SVOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI/FS work is necessary to include the entire production and drainage area. A soil removal (6,800 cy) is planned for the removal of metals contaminated soil. It is assumed that the excavated soils will be stabilized on-site for disposal off-site as a non-hazardous waste. LUC and LTM will be necessary for the soils left in place below current building structures. Five 5 year reviews are planned. LTM will include annual monitoring for the first five year period. Subsequent sampling requirements will be based on the findings of the initial sampling period.

RSA-126
INACTIVE OPEN BURN TRENCH

SITE DESCRIPTION

RSA-126 is ~7 acres located near the geographical center of the arsenal, southwest of the intersection of Martin and Patton Roads. RSA-126 is made up of 2 trenches that were formerly used for open burning, and a surface burn area. Each trench is ~200 feet long, 10 to 12 feet wide, and 10 feet deep. The surface burn area is ~20 x 20 feet. No information is available about the period of operation or about the types and origin of materials burned in the trench. A long, narrow mound of soil is located at the west end of the trench, which is presumably the soil excavated from the trench. The site was fenced in 2001.

Metals were detected in the soil.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: AB
TYPE NAME: Burn Area
SITE ACRES: 6.7
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Additional RI/FS efforts are necessary to complete test pits of the trenches. A soil removal (400 cy) is planned, and removed material will be disposed as non-hazardous. Fence removal is estimated as part of the RA activities.

RSA-134
INACTIVE DISPOSAL TRENCH & BURN PIT

SITE DESCRIPTION

RSA-134 consists of a disposal trench and open burning pit located east of Patton Road, south of Martin Road, and north of Creek Road. The site is located 100 feet from Creek Road in a marshy area. The trench is ~25 x 75 x 4 (deep) feet. It was reported to have been utilized as an open burning pit and/or a disposal trench. No primary records have been found that support this description.

Current historical records do not enable definitive determination as to UXO/CWM status. Additional archive search activities should provide a final determination.

The site is contaminated with metals in the groundwater, surface water and soils.

STATUS

SURFACE OU: OU-7
GW SITE #: RSA-145
TYPE CODE: AB
TYPE NAME: Burn Area
SITE ACRES: 0.75
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS, RA
FUTURE IRP PHASE:
RA (O), LTM

PROPOSED PLAN

Additional RI/FS (Archive Search Review to answer UXO/CWM question and some CWM testing) work will be completed to sample for CWM and perchlorate. An 835 ft fence is planned for the site due to potential UXO/CWM concerns. Land use controls will be implemented. Three 5 year reviews are planned. LTM will include fence maintenance and the final two 5 year reviews.

RSA-135H
INACTIVE SUMP FOR 1.1 PROPELLANT WASTES

SITE DESCRIPTION

This site is located on the west side of Building 7593 in the former Redstone Arsenal Rocket Engine South Plant. It is an inactive captive sump (no outlet) for containment of D.O.T. 1.1 propellant (explosive) wastes. The building was constructed in 1959 for cleanup of propellant de-aeration in the manufacturing of rocket propellant. RSA-135H collected building washdown water. The concrete-lined sump is 5 x 9 x 6 feet deep, and is covered by a wooden lid. The sump was periodically cleaned out and contents disposed of at the OB/OD area on Redstone.

STATUS

SURFACE OU: OU-11
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 1
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals, Explosives
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, LTM

PROPOSED PLAN

Based on the PA/SI, an RI/FS will be initiated to delineate the previously detected explosive contamination and to add perchlorate to the investigation. A sump removal (1,000 cy) is planned for explosives. The removed material will be disposed as non-hazardous. In situ bioremediation is planned for explosives and VOCs in soils. One 5 year review is planned. Annual monitoring will be required during the 5 year review period.

RSA-138M
INACTIVE TEMPORARY STORAGE AREA

SITE DESCRIPTION

This site was located at Building 7722 in the former Redstone Arsenal Rocket Engine Facility North Plant and consists of a temporary storage area for waste generated during rocket motor production activities (0.5 acres). During the 1940s, this area was Redstone Ordnance Plant burster Line #2 which produced tetryl-based explosives components. After 1950, the building was used for various activities, including paint spraying and rocket motor propellant cutting operations using D.O.T. 1.3 class explosives.

The groundwater is contaminated with VOCs, primarily TCE. Tetryl has been found in the surface soil.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 0.5
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, Explosives, Perchlorates
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RA

PROPOSED PLAN

The RI/FS report will be completed (draft due 7/04). Results indicate that no remedial actions are required for the treatment of surface media. Based on the concentrations of perchlorate and TCE detected in groundwater, it is believed that land use control will be required.

RSA-139
CAPPED ARSENIC WASTE POND-NORTH

SITE DESCRIPTION

RSA-139 is a ~0.5 acre site located in the east-central part of the arsenal, north of Viper Road, west of Meteorology Road, and east of Calibration Road. It was an open, unlined surface impoundment that received waste discharge from arsenic trichloride manufacturing (included in RSA-122) facilities in the early 1940s. The site was capped with compacted clay and fenced in 1995. The soil/sediment contains high levels of metals, mainly arsenic.

STATUS

SURFACE OU: OU-16
GW SITE #: RSA-147
TYPE CODE: SI
TYPE NAME:
Surface Impoundment/ Lagoon
SITE ACRES: 0.5
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RA(O)
FUTURE IRP PHASE:
RA(O), LTM

PROPOSED PLAN

Complete PP/ROD (to be completed with sites RSA-122 and RSA-56), including LUC. Data suggests that the cap may not be adequate for final remedy. Under the RSA-122 investigation, data are being collected to demonstrate the effectiveness of the cap with regard to protection of groundwater. LTM of fencing and cap maintenance is planned. Five 5 year reviews are planned. Annual monitoring for the first five year period is planned. Subsequent sampling requirements will be based on the findings of the initial sampling period.

RSA-141
4.2 INCH MORTAR DISPOSAL SITE, BLDG 4656

SITE DESCRIPTION

RSA-141 is a grass-covered field located adjacent to Building 4656, south of the former Huntsville Arsenal Plant No. 2. Between February 1992 and October 1994, a total of twenty 4.2-inch non-explosively-configured, empty (or water filled) mortar rounds were discovered buried at the site approximately one foot below the ground surface. Four additional 4.2-inch mortar rounds were found at the same site at a later date.

A chain-link fence was erected in 1995 as a safety precaution along the perimeter of the site.

In 1999, it was discovered that an industrial sewage outfall from a nearby NASA facility discharged into the middle of the site. This will complicate NASA's investigation of their underlying chlorinated solvent plume, as well as the proper division of cleanup responsibility.

This site is located within the MSFC boundary.

STATUS

SURFACE OU: OU-18
GW SITE #: RSA-149
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 11
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, VOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC - 2004

PROPOSED PLAN

The Army will approach NASA about taking responsiblility for the soil and groundwater contamination at this site.

RSA-142
CHLORINATED-SOLVENT SPILL AREA

SITE DESCRIPTION

This area was originally ROP Burster Line 1. Subsequent Thiokol operations involved case prep and cleanup operations. These operations included vapor degreasing operations in former Building 7664, 7663, 7662, and other associated facilities in the area.

In 1989, a valve malfunction on the solvent reclamation still of the degreaser resulted in a reported spill of 30 gallons of TCE to a nearby ditch. Prior to connection to the sewer line, trench drains along the building feature discharged to the ditch and drained east toward the wetlands across East Line Rd.

The degreaser unit at this site was a vapor degreaser unit with a distillation unit similar to the degreaser/distillation units at RSA-94 through 98.

Subsequent groundwater PTSM work (2002) has identified significant levels of TCE and perchlorate in soil requiring remedial action.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 5.25
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, VOCs, Perchlorates
MEDIA OF CONCERN:
Surface & Subsurfac Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Additional RI/FS is planned to further characterize the TCE contamination in soil, and to identify potential perchlorate sources. A PP/ROD will follow. Results indicate that treatment of both subsurface soils and groundwater is required for TCE. NAPL is present at the site. Perchlorate contamination is also present in the groundwater at the site. Therefore, the remediation must be sequenced with an intial dissolved-phase carbon injection for perchlorate followed by a chemical oxidation for TCE that will address the NAPL in both soil and groundwater. Given the perchlorate levels in groundwater, resolution of EPA DOD issues regarding perchlorate remediation levels need to be resolved prior to selecting a remedial goal. Three 5 year reviews are planned. Annual monitoring with MNA will be conducted during the first 5 years. Subsequent monitoring will be based on the results of the first five year results.

RSA-143
UNDERGROUND STORAGE TANK SPILL SITE

SITE DESCRIPTION

RSA-143 is located near the intersection of Goss Road and Vincent Drive, east of an existing service station, Building 3240. It is a gasoline spill site and was created by leaking underground storage tanks (USTs) and past operations. There were four original USTs that operated at this site for ~28 years, that serviced the closed AAFES service station. The tanks were previously removed, as well as soils around the tanks and lines, and the excavation was backfilled with clean soil and closed.

Groundwater is contaminated with high concentrations of lead, MTBE, benzene, ethylbenzene, toluene and xylenes. The design for in-situ oxidation remediation was completed in 2001.

A new service station (Class VI, Bldg 3234) was opened in 1996 upgradient to the west, a release from which has contributed to the BTEX plume. This area is not part of RSA-143 and will be funded by compliance.

STATUS

SURFACE OU: OU-1
GW SITE #: RSA-146
TYPE CODE: SS
TYPE NAME: Spill Site Area
SITE ACRES: 5.75
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
BTEX, MTBE, Lead
MEDIA OF CONCERN:
Surface & Subsurface Soil, Groundwater
COMPLETED IRP PHASE:
PA/SI, RA
CURRENT IRP PHASE:
RA (funded)
FUTURE IRP PHASE:
RC - 2004

PROPOSED PLAN

Additional RFI funding is needed for the completion of the ARBCA report at the old gas station. A second round of an in-situ oxidation is planned based on the existing Corrective Action Plan (funded). Prior to implementation of the second round, one year of biannual groundwater monitoring will be performed to determine the need for additional injections. The old site will be closed using the ADEM ARBCA process. Three quarterly rounds of groundwater sampling are planned after the final injections to determine the effectiveness of the remedy. NOTE: the new spill site [up gradient to west] will require a separate ARBCA report using the installation O&M funds.

RSA-144
CHLORINATED-SOLVENT DISTILLATION UNIT 6

SITE DESCRIPTION

This site is located at Building 7554 in the former Redstone Arsenal Rocket Engine Facility South Plant. In the 1940s, the building was used for rocket motor casting and processing. Degreasing, painting and storage activities took place at this site in association with rocket propellant research, development and manufacturing.

Low levels of metals have been found in the soil. Groundwater beneath this unit has high levels of TCE.

STATUS

SURFACE OU: OU-11
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 4
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
VOCs, Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, LTM

PROPOSED PLAN

Based on PA/SI information, an RI/FS for surface media is required. Sampling for chlorinated solvent and perchlorates will be included, as well as groundwater sourcing determination. In situ oxidation is planned to address the TCE found in subsurface/deep soils and DNAPL secondary source material in groundwater. Remedial actions currently planned do not include any action for perchlorates in soil. This decision is based on historical site operations. If the current RI investigation, which includes further investigation of perchlorate in soils, renders data that suggests a perchlorate action is needed, one will be included in future revisions and CTC estimates. One 5 year review is planned. Annual monitoring is planned for the first five year review period to determine the effectiveness of the remedy.

RSA-145
GROUNDWATER UNIT GW-01

SITE DESCRIPTION

This groundwater site includes: RSA-5, 8, 45, 48, 58, 112/128, 113, 134, 143, D. Completion of RI/FS investigation at those known sites with respect to their contributions to groundwater contamination needs to be coordinated in terms of timing.

Current groundwater data indicates that sources other than those previously identified may exist and are contributing to groundwater contamination. Multiple contaminated off-site groundwater and surface flows enter this site.

Groundwater contaminants surface through multiple springs, resulting in surface water contamination, much of which occurs at Wheeler Wildlife Refuge. The inability to point to other sources is hindering the Army's ability to close the known sites which do not appear to be contributing to the overall plumes observed.

Key PTSM areas include the Landfill 1 (primary), Smoke Munitions Incendiary Bomb Filling Area, and Wastewater Treatment Plant 4.

TCE has been found to stay consistent at low levels along both creeks as they flow through the arsenal. There are both losing and gaining reaches of stream segments. This suggests inputs from known sites, potential PTSM areas, off-site sources, etc. Based on these findings, the use of an IOU (Integrator OU) will be required to evaluate the cumulative effects of these inputs.

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: 9,900
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN:
TCE
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Complete RI, including PTSM evaluations at known and suspected sites, and anthropogenic background associated with off-site sources. Establishment of the IOU and perimeter well program is anticipated as part of the LTM for this site.

Anticipated surface media actions may include the following: Landfill #1 (RSA-145A) will be capped with a geosynthetic clay, engineered cover (15 acres) with bank stabilization along McDonald Creek. This action will be moved to the appropriate new surface media site created for LF #1.

Approximately 8 new discrete sites are currently estimated as likely to be identified as a result of the PTSM screening effort. Four of the 8 will potentially require some remedial action. Included in these projected actions is the excavation of the smoke pot test area (~1,000 yds) and disposed as non-hazardous.

It is anticipated that the PTSM investigation will identify other required actions, such as RI/FS work at previously unidentified sites and additional remedial actions. Fundings for these actions will also be moved to the appropriate new surface media sites that contain the PTSM being addressed.

It is expected that once the potentially contributing sites to groundwater contamination have been addressed (both on- and off-post), no further groundwater remedial action will be necessary beyond monitoring.

Integration of the results of the PTSM investigations and existing site data, and the documentation of off-site input will be necessary in order to close this site and appropriately limit further remedial activities.

Estimate for RSA-145 includes the cost for global tasks such as evaluation and investigation of IOU inclusion, site access control, exit pathway wells, perimeter well network, and indoor air quality evaluations. Groundwater monitoring [32 wells (25% of existing wells) x 10 years] will follow. Planned abandonment of 75% of 120 current wells is included in the in the RA. Three 5 year reviews are planned.

RSA-146
GROUNDWATER UNIT GW-02

SITE DESCRIPTION

Includes: RSA-46, 64, 82, 83, 87, 88, 89, 94, 95, 96, 97, 98, 99, 129, 138M, 135H, 140, 142, 144, A, C (~10 square miles).

New possible PTSM areas: e.g., Gravel Trenches, Warehouse Area, Old Maint Area, 2 Burn Areas, 3 Burial Areas, etc.

This groundwater site is the source of the off-post groundwater contamination. Both TCE and perchlorate have been found in the groundwater and surface water outside of the arsenal's boundaries. Several DNAPL sources are known to be located in this groundwater site. Contamination from the source areas are co-mingled and wide-spread. Although the drinking water for the community around this area of the arsenal comes from the Tennessee River, there are several agricultural wells nearby.

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: 6,600
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, Explosives, Perchlorates
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Finish groundwater investigation of 21 existing sites with the primary focus on the interior of the area to identify significant migration pathways. Complete source characterization of possible PTSM areas in order to evaluate relative impact to groundwater contamination and overall risk assessment.

Evaluate impact of this area on Integrator OU(s). Evaluate the appropriate goal and most efficient use of pump and treatment systems in overall groundwater remedial program. Perform treatability studies for perchlorate and TCE. The results of these studies will assist in making informed decisions at this and other sites.

It is anticipated that the RI will identify other required remedial actions. These actions may include in situ or pump and treatment (existing treatability studies) actions for secondary sources in groundwater. Included in the CTC are 12 additional extraction wells for the existing pump and treatment systems. The extraction wells will be designed to target both TCE and perchlorate secondary sources in groundwater. Both systems will be modified to include a bioreactor for the treatment of perchlorate with a common discharge to Huntsville Spring Branch. Ultimate RD/RA selection will be based on treatability study results and individual site parameters.

Assuming the injection process is not successful in removing sufficient DNAPL to significantly affect groundwater concentrations of concern, and also assuming that exposure scenarios are acceptable, the establishment of a Containment Zone with a TI Waiver will be pursued, with monitored natural attenuation as the expected long-term remedy.

Estimate for RSA-146 includes the cost for global tasks such as evaluating for Integrator OU inclusion, site access control, exit pathway wells, indoor air quality evaluations.

Off-site LTM program for surface water, sediment, and groundwater monitoring will be performed for 10 years.

Groundwater monitoring of 40 wells for 10 years will follow. Abandonment of 75% of 394 current wells is planned. Three 5 year reviews are planned with the final two 5 year reviews included in LTM. LTO costs include eight years of operation of the current pump and treat systems, groundwater monitoring of the 40 wells, and abandonment of 300 wells.

RSA-147
GROUNDWATER UNIT GW-03

SITE DESCRIPTION

Includes: RSA-54/55, 56, 57, 59, 104, 117, 118, 122, 126, 139 (~3 square miles)

New possible PTSM areas: e.g., Former DDT/Mustard Gas Production Area, railroad classification yard, one ton lewisite container storage area, etc.

The contaminants in this groundwater site consist primarily of metals and TCE. There are still several unknown sources of the contamination, since the known sources do not include all the contaminants in the groundwater.

Several springs within the Huntsville Spring Branch, to the south of this groundwater site, contain high levels of chlorinated solvents.

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: 1,300
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, Explosives
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Finish groundwater investigation from 10 existing sites. Complete source characterization of possible PTSM (particularly Olin/DDT Area, McMorrow Labs) areas in order to evaluate relative impact to groundwater contamination and overall risk assessment. Evaluate impact of this area on Integrator OU(s).

Remediation may include a reactive wall for arsenic at former HVA Plant #2 lewisite area (RSA-122, -56, -57, -139). Ultimate RD/RA selection will be based on treatability study results and individual site parameters.

Estimate for RSA-147 includes the costs for global tasks such as evaluation and investigation of Integrator OU, site access control, exit pathway wells, and indoor air quality evaluations.

Groundwater monitoring of 25 wells for 10 years will follow. Planned abandonment of 75% of 148 current wells is included. Three 5 year reviews are planned with the final two 5 year reviews included in LTM.

RSA-148
GROUNDWATER UNIT GW-04

SITE DESCRIPTION

Includes: MSFC-74, RSA-10, 27, 49, 53, 60, 61, 62, 114, 183 (~6.7 square miles).

New possible PTSM areas that have been identified at this time include Salvage Yard, Small Arms Ranges etc. The archive search report and visual site inspection will be completed for this site to verify.

This groundwater site drains to the Huntsville Spring Branch, within the boundaries of the Wheeler National Wildlife Refuge. The primary contaminants of concern in this area are chlorinated solvents and DDT. Two plumes of chlorinated solvents in this groundwater site are comingled with plumes from the NASA area on the arsenal. There are several springs that empty into the Huntsville Spring Branch that contain very elevated levels of chlorinated solvents. This site is likely to be significantly impacted by contamination originating at the Marshall Space Flight Center.

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: 3,600
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, Explosives
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Finish groundwater investigation from 8 existing sites. Complete source characterization of possible PTSM areas in order to evaluate relative impact to groundwater contamination and overall risk assessment.

This groundwater site includes both MSFC and RSA sites that contribute to comingled groundwater contamination. Responsibility for investigation and remediation of this groundwater contamination must be resolved. Resolution of this issue will significantly affect the cost and schedule of completing this site.

Prepare position paper and obtain written concurrence from regulators concerning characterization and relative contribution of Olin vs. MSFC/RSA wastes (DDT, chlorobenzene, etc.) contamination in the southern portion of RSA-148 (probable Integrator Operable Unit area).

Ultimate RD/RA selection will be based on treatability study results and individual site parameters.

Estimate for RSA-148 includes the costs for global tasks such as evaluation and investigation of Integrator OUs, site access control, exit pathway wells, and indoor air quality evaluations.

Groundwater monitoring of 20 wells for 10 years will follow. Planned abandonment of 75% of 244 current wells. Three 5 year reviews are planned. Included in LTM are the final two 5 year reviews.

RSA-149
GROUNDWATER UNIT GW-05

SITE DESCRIPTION

Includes: MSFC-2, 3, 34, 53, 77, 82, D, RSA-9, 52, 63, 109, 141 (~9 square miles).

New possible source area: Railroad Spring Disposal Area.

Several plumes, comingled with plumes from NASA activities, are located within this groundwater site. Data indicates that not all source areas and flow pathways have been identified. Due to karst geology, this groundwater moves to the springs emptying into the Huntsville Spring Branch within Wheeler National Wildlife Refuge. This site is significantly impacted by contamination originating at the Marshall Space Flight Center.

The presence of a threatened small fish species (Alabama Darter) will increase the ecological concern.

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: 3,900
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, Explosives
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Finish groundwater investigation from 13 existing sites. Complete source characterization of possible PTSM areas (Railroad Spring) in order to evaluate relative impact to groundwater contamination and overall risk assessment.

This groundwater site includes both MSFC and RSA sites that contribute to comingled groundwater contamination. Responsibility for investigation and remediation of this groundwater contamination must be resolved. Resolution of this issue will significantly affect the cost and schedule of completing this site. For example, remedial actions would need to be implemented in identified areas such as HRC injections near MSFC-3/82 (carbontet, TCE) and MSFC-34 (carbontet, TCE, PCE, chloroform). Both parties currently deny responsibility for the groundwater contamination present in these areas.

Ultimate RD/RA selection will be based on treatability study results and individual site parameters.

Estimate for RSA-149 includes the costs for global tasks such as the evaluation and investigation of Integrator OUs, site access control, exit pathway wells, and indoor air quality evaluations.

Groundwater monitoring of 20 wells for 10 years will follow. Planned abandonment of 75% of 89 current wells. Three 5 year reviews are planned. LTM includes the final two 5 year reviews. This assumes that MSFC will address the necessary source characterization and remediation, which is far from a certainty at this time.

RSA-150
GROUNDWATER UNIT GW-06

SITE DESCRIPTION

This site will be opened in AEDB-R.

- North central portion of installation
- No current IRP sites
- PTSM north railroad classification yard, small arms range, airfield

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: -
RRSE RATING: NE
OE: No
CONTAMINANTS OF CONCERN:
x
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
None
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Primary purpose is to understand groundwater flow in order to plan and justify GW efforts downgradient.

RSA-151
GROUNDWATER UNIT GW-07

SITE DESCRIPTION

Includes: RSA-13, 14, 110 (~1.5 square miles)

A large plume containing chlorinated solvents and perchlorate exists in this groundwater site. DNAPL has been identified. This site is located along the Tennessee River, 1 mile upstream of the arsenal's drinking water intake. RSA-151 is located on TVA property. Work continues to determine if any of the contamination is moving into the river, where it would have the potential to impact the arsenal's drinking water. Perchlorate has not been characterized, but has been found in extremely elevated amounts in surface water and groundwater. The presence of archeological sites will increase the investigation cost. There is an active range within this site.

STATUS

SURFACE OU: -

GW SITE #: -

TYPE CODE: CG

TYPE NAME:
Contaminated Groundwater

SITE ACRES: 600

RRSE RATING: Medium

OE: No

CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, Explosives

MEDIA OF CONCERN:
Groundwater

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Additional RI/FS work will be completed to delineate the CWM breakdown products, perchlorate, and further DNAPL delineation with depth. Exit pathway well results are being evaluated to determine if investigation may be necessary on the other side of the Tennessee River. Planned remediation includes sequential in situ treatment for VOCs and perchlorate at the RSA-13/14 area following coordination with OB/OD activities.

Evaluate and implement short term (TCRA?) action for perchlorate in surface water (embayment).

Estimate for RSA-151 includes the costs for global tasks such as the evaluation and investigation of Integrator OUs, site access control, exit pathway wells, and indoor air quality evaluations.

Groundwater monitoring of 10 wells for 10 years will follow. Ultimate RD/RA selection will be based on treatability study results and individual site parameters. Planned abandonment of 75% of 169 current wells. Three 5 year reviews are planned. Included in LTM is the final two 5 year reviews.

RSA-152
GROUNDWATER UNIT GW-08

SITE DESCRIPTION

Includes: RSA-32, 65, 66, 67, 68, 69/70 (~ 2 square miles)

No new PTSM areas have been identified at this time. The archive search report and visual site inspection will be completed to verify.

The groundwater has been found to contain elevated levels of chlorinated solvents and breakdown products of mustard agent. This unit is located along the Tennessee River, adjacent to the area where the arsenal's drinking water is pulled from the river. Very little characterization has been done in this groundwater site due to the amount of UXO on the surface/subsurface and the remote location on the arsenal.

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: 900
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC, VOCs, Explosives
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Finish groundwater investigation from 6 existing sites. Complete source characterization of possible PTSM areas in order to evaluate relative impact to groundwater contamination and overall risk assessment.

Estimate for RSA-152 includes the costs for global tasks such as the evaluation and investigation of Integrator OUs, site access control, exit pathway wells, and indoor air quality evaluations.

Groundwater monitoring of 20 wells for 10 years will follow. Ultimate RD/RA selection will be based on treatability study results and individual site parameters. Groundwater extraction and treatment is expected at this unit. Planned abandonment of 75% of 97 current wells. Three 5 year reviews are planned. Included in LTM is the final two 5 year reviews.

RSA-153
GROUNDWATER UNIT GW-09

SITE DESCRIPTION

This site will be opened in AEDB-R.

-western side of Redstone

-sink holes may have been dump areas

- Public Supply well with low levels TCE - source expected to be off-post

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: -
RRSE RATING: NE
OE: No
CONTAMINANTS OF CONCERN:
x
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
None
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Primary purpose is to understand groundwater flow in order to plan and justify GW efforts downgradient.

RSA-154
GROUNDWATER UNIT GW-10

SITE DESCRIPTION

This site will be opened in AEDB-R.

- Static Test Fire Activities

- Center lower part of Arsenal

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: -
RRSE RATING: NE
OE: No
CONTAMINANTS OF CONCERN:
x
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
None
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Primary purpose is to understand groundwater flow in order to plan and justify GW efforts downgradient.

RSA-155
GROUNDWATER UNIT GW-11

SITE DESCRIPTION

This site will be opened in AEDB-R.

Concentrations of VOCs were found in the exit pathway of well clusters 1 and 2 located within RSA-155. This contamination may be attributed to sources within this groundwater site (new possible PTSM areas: e.g., dock storage area, Gulf Chem Warfare Depot open air drum storage area, etc.), but may be associated with sources within RSA-149 (NASA). This unit is located along the Tennessee River, where the arsenal's drinking water is pulled from the river.

RRSE for this site is currently being evaluated.

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: 900
RRSE RATING: NE
OE: No
CONTAMINANTS OF CONCERN:
VOCs
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
None
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Complete source characterization of possible PTSM areas in order to evaluate relative impact to groundwater contamination and overall risk assessment.

Estimate for RSA-155 includes the costs for global tasks such as the evaluation and investigation of Integrator OUs, site access control, exit pathway wells, and indoor air quality evaluations.

Groundwater monitoring (6 wells for 10 years) will follow. Ultimate RD/RA selection will be based on treatability study results and individual site parameters. Three 5 year reviews are planned. Included in LTM will be the final two 5 year reviews.

RSA-156
GROUNDWATER UNIT GW-12

SITE DESCRIPTION

Includes: RSA-115 (RSA-116 was transferred to the RCRA program based on its operational range status) (~2.5 square miles)

New possible source areas: GCD Igloos and associated dock areas, possible quarry/borrow area, etc.

This groundwater site is located along the Tennessee River, ~5 miles upstream of the arsenal's drinking water intake. Low levels of TCE have been found in the groundwater. Perchlorate has been found in low levels, but has not been characterized.

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME: Contaminated Groundwater
SITE ACRES: 1,400
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
VOCs, Perchlorate
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O), LTM

PROPOSED PLAN

Complete source characterization of possible PTSM areas in order to evaluate relative impact to groundwater contamination and overall risk assessment. Finish groundwater investigation including perchlorate characterization. Transfer RSA-115 from CERCLA to RCRA based on its operational range status. No active remediation is expected.

Estimate for RSA-156 includes the costs for global tasks such as the site access control.

Groundwater monitoring of 5 wells for 10 years will follow. Planned abandonment of 75% of 32 current wells. Three 5 year reviews are planned. Included in LTM will be the final two 5 year reviews.

RSA-157
GROUNDWATER UNIT GW-13

SITE DESCRIPTION

This site will be opened in AEDB-R.

- lower east of arsenal
- old mag area
- industrial water supply intake (bldg 5428)

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: CG
TYPE NAME:
Contaminated Groundwater
SITE ACRES: -
RRSE RATING: NE
OE: No
CONTAMINANTS OF CONCERN:
x
MEDIA OF CONCERN:
Groundwater
COMPLETED IRP PHASE:
None
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

Primary purpose is to understand groundwater flow in order to plan and justify GW efforts downgradient.

RSA-183
FORMER LEWISITE PRODUCTION FACILITY

SITE DESCRIPTION

This site was created to include the lewisite manufacturing lines 1 and 2 with the exception of the capped arsenic waste lagoon (RSA-49). This site also includes the large drainage feature approximately 1.5 miles to the south that could have potentially received all drainage from both RSA-183 and RSA-49. RSA-183 is located south of Neal Road at the Toftoy Thruway intersection and covers approximately 140 acres. Portions of the area are presently used as a parking lot for a series of trailers and buildings, including Bldg 4381.

The surface soils in the production areas are contaminated with arsenic and mercury.

STATUS

SURFACE OU: OU-5
GW SITE #: RSA-148
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 140
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS, RD
FUTURE IRP PHASE:
RA, RA(O), LTM

PROPOSED PLAN

RI efforts are currently on-going to investigate the complete lewisite production area.

A 4,000 cy soil removal and consolidation in a 0.5 acre on-site cell is planned for the production area. Land use controls will be necessary for the site. Three five year reviews are planned. The final two five year reviews, cap maintenance, and fence maintenance will be included in the LTM.

Annual groundwater monitoring is included for the first five year review period in order to demonstrate the effectiveness of the remedy.

RSA-184

INTEGRATOR OU1 - HUNTSVILLE SPRINGS BRANCH

SITE DESCRIPTION

This site will be opened in AEDB-R.

~5 miles

~220 springs of which ~70 are key springs,

~20 stream monitoring pts

- McDonald Creek, HSB, Indian Creek

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: x
TYPE NAME: x
SITE ACRES: -
RRSE RATING: NE
OE: No
CONTAMINANTS OF CONCERN:
x
MEDIA OF CONCERN:
x
COMPLETED IRP PHASE:
None
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, LTM

PROPOSED PLAN

- establish baseline with quarterly sampling for 1 year at key spring and stream monitoring points

- eco assessment

- LTM as part of remedy effectiveness of upgradient sites

Funding is shown for Army component of Int OU; comparable amount expected for NASA effort.

RSA-185
INTEGRATOR OU2 - TN RIVER

SITE DESCRIPTION

This site will be opened in AEDB-R.

~10 miles

- Ditto Landing to Triana
- TN River and tributaries
- 50-75 sampling areas

STATUS

SURFACE OU: -
GW SITE #: -
TYPE CODE: x
TYPE NAME: x
SITE ACRES: -
RRSE RATING: NE
OE: No
CONTAMINANTS OF CONCERN:
x
MEDIA OF CONCERN:
x
COMPLETED IRP PHASE:
None
CURRENT IRP PHASE:
None
FUTURE IRP PHASE:
RI/FS, LTM

PROPOSED PLAN

- establish baseline with quarterly sampling for 1 year at key spring and stream monitoring points
- eco assessment
- LTM as part of remedy effectiveness of upgradient sites

Funding is shown for Army component of Int OU; comparable amount expected for NASA effort.

RSA-A
INACTIVE PROPELLANT STORAGE WELLS

SITE DESCRIPTION

This site is located northwest of former Building 7598 (RSA-B), in the former Redstone Arsenal Rocket Engine Facility South Plant. Bldg 7598 was built during the 1950s and was used for rocket motor propellant research and development. This site consists of approximately 51 steel-cased, 4 inch diameter storage wells with capped bottom ends that were used for safe storage of experimental explosives and propellants. Well depths are approximately 1 to 4 feet below ground surface. A concrete-lined sump located on the northeast side of Bldg 7598 is also being investigated as part of RSA-A.

Low levels of metals and chlorinated solvents were detected in the groundwater, low levels of metals were detected in the soil. RSA anticipates this site to be lowered to 'Low' RRSE status.

STATUS

SURFACE OU: OU-11
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 0.6
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
VOCs, Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil, Sediment, Surface Water
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC

PROPOSED PLAN

A supplemental SI will be required to include investigation for perchlorate in surface media. Once this additional sampling is complete, we anticipate the site will be closed via a decision document.

RSA-C
ABANDONED ARMY PROPELLANT MIXER BLDG

SITE DESCRIPTION

This site includes the old RSA-C area and the old RSA-82 Area. The old site RSA-C is located at former Building 7596 and is located in the Redstone Arsenal Rocket Engine South Plant. The building was used as a chemical processing facility for experimental rocket propellant mixing in the 1950s through the 1970s. Ammonium perchlorate and numerous solvents were used in the process. Wastewater was discharged via an industrial sewer to the wetlands to the east of RSA-C. Building 7595 (RSA-82), former Building 7596, and former Building 7597 (a solvent mixer line building that connected to Building 7596 via a covered walkway) are included within the area of investigation for RSA-C.

The old RSA-82 site is located at Building 7595 in the former Redstone Arsenal Rocket Engine Facility South Plant and was a propellant sparge tank with a mist eliminator, two condensers, and a condensate receiving tank. Building 7595 is located less than 150 feet to the west of Building 7596 and lies within the area of investigation for RSA-C. RSA-82 utilized methylene chloride as a mixing agent when preparing various propellant mixtures.

STATUS

SURFACE OU: OU-11
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 4
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOC
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Initiate an RI/FS to include perchlorate sampling and delineation of detected SVOCs and metals contamination. Remedial actions will not be included until RI/FS results are available.

RSA-D
FORMER CYANIDE-BASED PAINTING OPERATION

SITE DESCRIPTION

This site is located in the north-central portion of the arsenal on Cajun Drive, east of Patton Road. RSA-D includes the now dismanteled paint shed and the paint storage shed. The facility is fenced, locked, and secure. The paint shed was approximately 12 x 20 feet with a concrete floor and was used for spray painting. The process used special cyanide-based paints which were discharged into a sump. The mobile, paint storage shed was ~8 x 8 feet and was used for storing paint, freon, acetone and aerosols. These chemicals were periodically moved to different areas within the site boundary.

This area was part of the WWII Plant 3 IBF (incendary bomb filling operations) being investigated under RSA-145 PTSM.

STATUS

SURFACE OU: OU-2
GW SITE #: RSA-145
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: 0.25
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC

PROPOSED PLAN

RI/FS will be necessary to reevaluate/revise the existing risk assessment, including data usability, and proceed with the feasibility study, proposed plan and ROD. It is anticipated that the site will require no additional activities.

RSA-D
FORMER CYANIDE-BASED PAINTING OPERATION

SITE DESCRIPTION

This site is located in the north-central portion of the arsenal on Cajun Drive, east of Patton Road. RSA-D includes the now dismanteled paint shed and the paint storage shed. The facility is fenced, locked, and secure. The paint shed was approximately 12 x 20 feet with a concrete floor and was used for spray painting. The process used special cyanide-based paints which were discharged into a sump. The mobile, paint storage shed was ~8 x 8 feet and was used for storing paint, freon, acetone and aerosols. These chemicals were periodically moved to different areas within the site boundary.

This area was part of the WWII Plant 3 IBF (incendary bomb filling operations) being investigated under RSA-145 PTSM.

STATUS

SURFACE OU: OU-2
GW SITE #: RSA-145
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: 0.25
RRSE RATING: Medium
OE: No
CONTAMINANTS OF CONCERN:
Metals, SVOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC

PROPOSED PLAN

RI/FS will be necessary to reevaluate/revise the existing risk assessment, including data usability, and proceed with the feasibility study, proposed plan and ROD. It is anticipated that the site will require no additional activities.

RESPONSE COMPLETE
AEDB-R SITES

MSFC-082
INACTIVE CHEMICAL MUNITIONS/DEMIL. DISPOSAL TRENCHES

SITE DESCRIPTION

MSFC-82 is an area formerly used to demilitarize and dispose of mustard gas artillery shells during the mid-1940s. It is located in the southwestern portion of MSFC, west of Dodd Road, south of Surveyor Street, and north of Saturn Road. This area is associated with disposal activities that took place at MSFC-003.

Response complete, site consolidated with MSFC-003.

STATUS
SURFACE OU: OU-18
GW SITE #: RSA-149
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 21
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
Metals, SVOC, CWM
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC - 2004

MSFC-D
FORMER FUEL OIL STORAGE CONTAINMENT BERM

SITE DESCRIPTION

MSFC-D is located east of Rideout Road and north of Pioneer Street. The site consisted of a 50% caustic processing building associated with chlorine plant 1, including multiple small tanks on the south and three 50% caustic tanks on the north. Following chlorine plant closure, MSFC attempted to convert the three 50% caustic tanks to fuel oil storage. In 1988, a leak of ~20,000 gallons of fuel oil occurred from one of the tanks, resulting in a discharge to an adjacent drainage ditch. The tanks and the berm have since been removed.

The investigation of this site needs to integrated with the investigation of chlorine plant 1 and the caustic fusion plant being performed by NASA. Groundwater investigation will be coordinated with RSA-149.

NASA will address investigation and any potential soil actions.

STATUS
SURFACE OU: OU-18
GW SITE #: RSA-149
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: 2.5
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
SVOC
MEDIA OF CONCERN:
Subsurface Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC - 2004

RSA-005
INACTIVE WASTE ACCUMULATION AREA

SITE DESCRIPTION

RSA-5 was a waste accumulation area at the RSA Motor Pool located west of Patton Road and north of Neal Road. For a period of ~10 years, drums were stored on the ground surface in a 25 foot square earthen unlined area next to Building 3630. These drums contained lube oils, paints, thinners, used oil filters, used antifreeze, and shop rags that were generated during maintenance operations at the motor pool. Drums are no longer stored at this site.

The soil and sediment is contaminated with lead.

Given the operational period (1980-1990) and the on-going use of the site for maintenance and motor pool operations, the site will be transferred to the RCRA program. Actions will be initiated to obtain regulatory approval for the transfer from CERCLA to RCRA which will render this site response complete under the IRP.

STATUS

SURFACE OU: OU-2
GW SITE #: RSA-145
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: 0.2
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals (mostly Lead)
MEDIA OF CONCERN:
Soil, Sediment
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC - 2004

RSA-008
INACTIVE SEWAGE TREATMENT PLANT 4

SITE DESCRIPTION

Based upon the ongoing facility use, the site is not considered ER,A-eligible.

This plant treated sewage generated in the northern portion of the facility that was primarily domestic wastewater. It is located in the northeastern section of the facility north of Martin Road, east of Patton Road, south of Hansen Road and west of McDonald Creek. The basins still function as surge capacity during high flow times. The sludge drying beds are still being used for dewatering of sludges.

Based upon the ongoing facility use, the site is not considered IRP eligible.

A request has been forwarded to EPA/ADEM to remove this site from the CERCLA program. Approval from ADEM was granted on 4 Feb 03. EPA has unofficially concurred and formal confirmation is forthcoming.

STATUS

SURFACE OU: OU-2
GW SITE #: RSA-145
TYPE CODE: ST
TYPE NAME: Sewage Treatment Plant
SITE ACRES: 8
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
None
MEDIA OF CONCERN:
None
COMPLETED PHASE:
PA/SI, RI
CURRENT PHASE:
RC - 2002

RSA-009
INACTIVE SEWAGE TREATMENT PLANT #3

SITE DESCRIPTION

This plant treated sewage generated in the central portion of the facility that was primarily domestic wastewater. It is located in the western section of the facility south of Martin Road, west of MSFC on the west bank of Indian Creek. The basins still function as surge capacity during high flow times. The sludge drying beds are still being used for dewatering of sludges.

Based upon the ongoing facility use, the site is not considered IRP eligible.

A request has been forwarded to EPA/ADEM to remove this site from the CERCLA program. Approval from ADEM was granted on 4 Feb 03. EPA has unofficially concurred and formal confirmation is forthcoming.

STATUS

SURFACE OU: OU-18
GW SITE #: RSA-149
TYPE CODE: ST
TYPE NAME: Sewage Treatment Plant
SITE ACRES: 3.4
RRSE RATING: High
OE: No
CONTAMINANTS OF CONCERN: None
MEDIA OF CONCERN: None
COMPLETED PHASE: PA/SI, RI
CURRENT PHASE: RC - 2002

RSA-046
INACTIVE CHEMICAL MUNITION & DEMIL SITE

SITE DESCRIPTION

RSA-46 occupies approximately 100 acres in the southeast portion of RSA on Buxton Road, east of Patton Road. New archive search information indicates that this area was used during the 1940s and 1950s as a 4.2 inch mortar and small rocket motor test area. The onsite trenches were part of the range operational clearance activities. Limited geophysics have identified some trenches. Scrap metal and remnants of ordnance were found at the site.

Former RSA-140 is located near the firing point for the RSA-046 range and consists of construction debris (e.g. metallic objects, cement blocks, glass, charcoal, and insulation). This site was part of the larger range 2, which is being investigated as a PTSM.

Metals and explosives were found in the soil and sediment associated with the surface burn and trench areas. UXO is present at the site. (RSA-046-R-01 has been opened.)

The site boundary has been amended based on the new conceptual site model (now 100 acres). Based on the new conceptual site model and its location on an active range, this site should be transferred for action under RCRA upon range closure. This site will be response complete upon regulatory approval.

STATUS

SURFACE OU: OU-12
GW SITE #: RSA-146
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 100
RRSE RATING: Medium
OE RAC: Yes
CONTAMINANTS OF CONCERN: Metals, Explosives
MEDIA OF CONCERN: Soil, Sediment
COMPLETED IRP PHASE: PA/SI
CURRENT IRP PHASE: RI/FS
FUTURE IRP PHASE: RC - 2004

RSA-047
FORMER CHEMICAL TRAINING OPERATION

SITE DESCRIPTION

RSA-47 occupies an area approximately 19 acres in the north central part of RSA. Live agents, including mustard and nerve agents were used until 1985. Soil was previously tested from potentially contaminated areas within this fenced area and found low levels of both mustard and nerve agents residue. As a result, the area was 3X cleared (decontaminated such that no agent vapors were detected) in the mid-1980s by EOD Tech Escort. The area is currently being used as a chemical training area although live agents are no longer used.

A "No Further Action" ROD was submitted to the regulators in September 1999 and is pending approval. Subsequent to the submittal of the ROD, we received an anecdotal report of one ton cylinders buried within the site boundary. Research has indicated that the empty one ton cylinders were used as training aids only and require no further investigation.

The September 1999 ROD will be revised to include this information (funded) and resubmitted for approval.

STATUS

SURFACE OU: OU-3
GW SITE #: RSA-145
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 19
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
CWM, VOCs
MEDIA OF CONCERN:
Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC - 2004

RSA-050
INACTIVE MUNITIONS DEMIL & DISPOSAL AREA

SITE DESCRIPTION

RSA-50 was formerly used for the demilitarization of high explosives and white phosphorus. RSA-50 was active in the 1940s and 1950s and is located near the west-central boundary of OU-17. The site is in Test Area 6, north of the Wheeler National Wildlife Refuge, and west of Centerline Road. Originally identified as 11 acres, new data raises the area to approximately 295 acres. It includes a crest of a small knoll and other areas to the south and east.

Surface water runoff flows from the site into wetlands formed by Indian Creek. RSA-50 is currently covered with small trees, grass, and brush.

Some metal debris is present on the land surface. UXO is also present at the site.

Given that the site is located within an operational range which includes HE and other traditional ordnance items, this site should be transferred to RCRA for ultimate action under MMR.

Actions will be initiated to obtain regulatory approval for the transfer from CERCLA to RCRA which will render this site response complete.

STATUS

SURFACE OU: OU-17
GW SITE #: RSA-150
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 295
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
None
MEDIA OF CONCERN:
None
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC - 2004

RSA-051
INACTIVE MUNITIONS DEMIL & DISPOSAL AREA

SITE DESCRIPTION

STATUS
SURFACE OU: OU-17
GW SITE #: RSA-150
TYPE CODE: DC
TYPE NAME: Chemical Disposal
SITE ACRES: 2.4
RRSE RATING: Low
OE: Yes
CONTAMINANTS OF CONCERN:
None
MEDIA OF CONCERN:
None
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC - 2004

RSA-51 occupies about 2.4 acres near the southwestern boundary of OU-17 and is characterized by a small number of irregularly spaced, circular burn pad-type features. The area also includes a series of disposal trenches. The site is south of Wheeler Lake and the associated wetlands of Indian Creek and west of Centerline Road at the intersection of Test Area 6 and Test Area 1.

The site demilitarized munitions and explosives by open burning, burning in trenches, burial in trenches, detonation in earthen pits, and similar methods in this area. Artillery shells, including white phosphorus rounds, were reportedly disposed of at this site. Many regularly spaced trench features about 300 feet long extending east from Anderson Road characterize the trench area. The area is within an active missile test range and is used for pasture land and military exercises. The southern portion of the site is characterized by 12 regularly spaced trench features approximately 150 feet long extending east from the existing gravel road.

Traditional UXO is also present at the site. Archive search and previous sampling results do not indicate the presence of CWA.

Given that the site is located within an operational range which includes HE and other traditional ordnance items, this site should be transferred to RCRA for ultimate action under MMR.

Actions will be initiated to obtain regulatory approval for the transfer from CERCLA to RCRA which will render this site response complete.

RSA-082
FORMER SPARGE UNIT SITE, BLDG 7595

SITE DESCRIPTION

STATUS
SURFACE OU: OU-18
GW SITE #: RSA-146
TYPE CODE: ID
TYPE NAME: Industrial Discharge
RRSE RATING: Low
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC - 2002

This site was combined with RSA-C and in listed as response complete in AEDB-R.

RSA-115
INACTIVE EAST SIDE BLOWDOWN LAGOON

SITE DESCRIPTION

RSA-115 is located in the southern portion of the arsenal, south of Buxton and Pershing Roads, on the eastern side of Test Area 5 (an operational range). This area was a rocket motor test stand and blowdown lagoon and is ~7,500 square feet. The site had an unlined holding basin that contained discharged cooling water during test firings of rocket motors from the adjacent Attitude Test Stand 8887. The wastewater was held in the lagoon until it evaporated and/or percolated through the soil. The cooling water mixed with the rocket motor exhaust containing unsymetrical dimethyl hydrazine as the primary active fuel ingredient and red fuming nitric acid as the primary oxidant. The lagoon has an earthen berm and is surrounded by small pine trees.

This site is configured such that rocket motor testing/blowdown activities could be resumed at any time, therefore, the site is considered active and will be transferred to the RCRA program pending regulatory approval. Once regulatory approval is obtained, the CERCLA site will be rendered response complete.

STATUS

SURFACE OU: OU-13
GW SITE #: RSA-156
TYPE CODE: SI
TYPE NAME:
Surface Impoundment. Lagoon
SITE ACRES: 0.75
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
None
MEDIA OF CONCERN:
None
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC - 2004

RSA-116
FORMER OPERATIONS AT SOUTH SIDE LAGOON

SITE DESCRIPTION

RSA-116 is approximately 4.5 acres and located in the southern portion of the Arsenal, south of Buxton and Pershing Roads, on the south side of Test Area 5. The site was an unlined holding basin for containment of spent cooling water discharged during test firings of rocket motors from Test Stand 8879. The cooling water was mixed with rocket motor exhaust. The spent cooling water was held in the lagoon and evaporated and/or percolated through the soil. There was a release structure at the base of the lagoon for drainage to a creek. In 1993, the lagoon was upgraded and lined, and an 8-feet tall chain link fence was installed. The site continues to be operated as a rocket motor test area.

Based upon the on going facility use, the site is not eligible for ER,A funding. A request has been forwarded to EPA/ADEM to remove this site from the CERCLA program. Approval from ADEM was granted on 4 Feb 03. EPA has unofficially concurred and formal confirmation is forthcoming.

STATUS

SURFACE OU: OU-13
GW SITE #: RSA-156
TYPE CODE: SI
TYPE NAME:
Surface Impoundment. Lagoon
SITE ACRES: 4.5
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
-
MEDIA OF CONCERN:
-
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC - 2002

RSA-118
INACTIVE IND. DITCH & DISCHARGE LAGOON

SITE DESCRIPTION

RSA-118 was a former ammonia lagoon used from approximately 1949 to the mid 1980s. It is ~5 acres in size. It is east of the former DDT Drainage Ditches, south of Mills Road, and north of Huntsville Spring Branch. ISP, Inc. manufactured carbonyl iron powder, and for a brief time (6 months) produced nickel carbonyl. This unit was a holding pond for discharges of wastewater containing ammonia generated by ISP, Inc. operations.

This area is within the southern draining of the revised RSA-117 site boundary.

Response complete. This site has been included in RSA-117.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: ID
TYPE NAME: Industrial Discharge
SITE ACRES: 5
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
None
MEDIA OF CONCERN:
None
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC - 2004

RSA-129
FORMER BURN PAD & CAPPED WASHOUT PIT

SITE DESCRIPTION

RSA-129 consists of an unlined concrete pit, unlined earthen settling pond, and an open field with various abandoned structures used to support testing. It is located in the east central portion of the arsenal at the north end of Magazine Road in the north plant of the RARE Facility. RSA-129 is bounded on the north, east, and west by wetlands that are associated with the Huntsville Spring Branch. The entire site is ~3.5 acres. RSA-129 has been used for a variety of programs, primarily propellant R&D, and for cleaning out defective rocket motor casings.

This site is within TA-10 and is actively used for propellant and explosives testing.

Historical research has determined that this site was never used for CWM disposal. Since it has been consistantly been used as a military range, it will be transferred to the RCRA program pending regulatory approval.

STATUS

SURFACE OU: OU-10
GW SITE #: RSA-146
TYPE CODE: AB
TYPE NAME: Burn Area
SITE ACRES: 3.5
RRSE RATING: Medium
OE: Yes
CONTAMINANTS OF CONCERN:
None
MEDIA OF CONCERN:
None
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC - 2004

RSA-140
INACTIVE DISPOSAL AREA

SITE DESCRIPTION

RSA-140 is located in the southeastern section of RSA, north of Buxton Road and south of the DRMO area. The site consists of two separate disposal mound areas (heights up to 7 feet) covering a total area of 320 square feet. The disposal mounds were found to contain construction-type materials (e.g. metallic objects, cement blocks, glass, charcoal, and insulation) from the 1960s and 1970s.

New historical search information indicates that RSA-140 and RSA-046 were part of a former range.

RSA-140 is considered response complete since the site has now been consolidated with RSA-046.

STATUS

SURFACE OU: OU-12
GW SITE #: RSA-146
TYPE CODE: DA
TYPE NAME: Surface Disposal Area
SITE ACRES: 3
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC - 2004

RSA-E
FUEL OIL SPILL FROM TANK #5693

SITE DESCRIPTION

RSA-E resulted from a No. 2 Fuel Oil spill at the above ground storage tank farm in the central portion of RSA. Several large above ground storage tanks are located adjacent to the north side of the site. A fence crosses the northern portion of the site. A drainage ditch flows from the northeastern side of the site south along the eastern and southern sides of the site. A large portion of the center of the site is wooded. This 10 acre area, drains to a wetland area. The fuel was released into a containment basin formed by an earthern berm built around the tank. Approximately 30,000 gallons of fuel oil seeped into the soil and groundwater. Approximately 366,000 gallons of oil/water mixture were reportedly recovered from the trench over a period of six months.

TPH and SVOCs (free product) were detected in the soil and groundwater.

Based upon the ongoing facility use, the site is not considered IRP eligible. A request has been forwarded to EPA/ADEM to remove this site from the CERCLA program. Approval from ADEM was granted on 4 Feb 03. EPA has unofficially concurred and formal confirmation is forthcoming.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-148
TYPE CODE: SS
TYPE NAME: Spill Site Area
SITE ACRES: 10
RRSE RATING: Medium
UXO RAC: No
CWM RAC: No
CONTAMINANTS OF CONCERN:
TPH, SVOCs
MEDIA OF CONCERN:
Surface & Subsurface Soil
COMPLETED PHASE:
PA/SI, RI
CURRENT PHASE:
RC - 2002

RSA-F
FORMER OPERATIONS AT OPEN STORAGE YARD

SITE DESCRIPTION

RSA-F is located in the area northwest of the intersection of Mills and Jungerman roads in central RSA. This open storage area and lay down yard is approximately 1.5 acres. The site is fenced, locked and secure, and is overlain with gravel.

A PCB spill occurred at this site but residual levels are low.

Based upon the ongoing facility use, the site is not considered DERP eligible. A request has been forwarded to EPA/ADEM to remove this site from the CERCLA program. Approval from ADEM was granted on 4 Feb 03. EPA has unofficially concurred and formal confirmation is forthcoming.

STATUS

SURFACE OU: OU-6
GW SITE #: RSA-147
TYPE CODE: SA
TYPE NAME: Storage Area
SITE ACRES: -
RRSE RATING: Low
OE: No
CONTAMINANTS OF CONCERN:
Metals, PCBs
MEDIA OF CONCERN:
Surface Soil
COMPLETED PHASE:
PA/SI, RI
CURRENT PHASE:
RC - 2002

RESPONSE COMPLETE AEDB-R SITES

AEDB-R #	AEDB-R Name	RC Date
MSFC-035	INACTIVE SUMP/TILED DRAIN FIELD-EAST TA	199102
MSFC-055	DISMANTLED STAUFFER CHEM.MFG. PLANT SITE	199909
MSFC-060	INACTIVE DELUGE WATER DRAINAGE SYS.	199909
MSFC-065	FORMER PESTICIDE STORAGE SURFACE DRAIN	199909
MSFC-082	INACTIVE CHEM MUNTS DEMIL/DISP TRENCHES	2004
MSFC-D	FORMER FUEL OIL STORAGE CONTAINMENT BERM	2004
RSA-001	FOX ARMY COMMUNITY HOSPITAL INCINERATOR	199102
RSA-002	IN-GROUND OIL/WATER SEPARATOR, BLDG.3338	199102
RSA-003	IN-GROUND OIL/WATER SEPARATOR, BLDG.3617	199102
RSA-004	IN-GROUND OIL/WATER SEPARATOR & WASHRACK	199102
RSA-005	INACTIVE WASTE ACCUMULATION AREA	2004
RSA-006	PAINT SHOP & SUMPS BLDG 3634 MOTOR POOL	199102
RSA-007	HAZARDOUS WASTE STORAGE AREA, BLDG. 3775	199102
RSA-008	INACTIVE SEWAGE TREATMENT PLANT 4	200212
RSA-009	INACTIVE SEWAGE TREATMENT PLANT #3	200212
RSA-012	ACTIVE BURN PANS	199102
RSA-015	HAZARDOUS WASTE STORAGE IGLOO, NO. 1	199102
RSA-016	HAZARDOUS WASTE STORAGE IGLOO, NO. 2	199102
RSA-017	HAZARDOUS WASTE STORAGE IGLOO, NO. 3	199102
RSA-018	HAZARDOUS WASTE STORAGE IGLOO, NO. 4	199102
RSA-019	HAZARDOUS WASTE STORAGE IGLOO, NO. 5	199102
RSA-020	HAZARDOUS WASTE STORAGE IGLOO, NO. 6	199102
RSA-021	HAZARDOUS WASTE STORAGE IGLOO, NO. 7	199102
RSA-022	HAZARDOUS WASTE STORAGE IGLOO, NO. 8	199102
RSA-023	HAZARDOUS WASTE STORAGE IGLOO, NO. 9	199102
RSA-024	HAZ. WASTE VACANT STORAGE IGLOO, NO. 10	199102
RSA-025	HAZ. WASTE VACANT STORAGE IGLOO, NO. 11	199102
RSA-026	HAZ. WASTE VACANT STORAGE IGLOO, NO. 12	199102
RSA-027	HAZ. WASTE VACANT STORAGE IGLOO, NO. 13	199102
RSA-028	IN-GROUND OIL/WATER SEPARATOR, 5693 AREA	199102
RSA-029	REDSTONE ARSENAL SANITARY SEWER SYSTEM	199102
RSA-030	CENTRAL OIL/WATER SEPARATOR	199102
RSA-031	CENTRAL OIL/WATER SEPARATOR STORAGE TANK	199102
RSA-033	PLATING ROOM FLOOR DRAINS, BLDG. 5432	199102
RSA-034	WASTE AVIATION FUEL TEMP. STORAGE AREA	199102
RSA-035	IN-GROUND OIL/WATER SEPARATOR, BLDG.4812	199102
RSA-036	IN-GROUND OIL/WATER SEPARATOR, BLDG.4832	199102
RSA-037	REMOVED USED OIL UST SITE, TANK #7846	199102
RSA-038	REMOVED USED OIL UST SITE, TANK #3240D	199606
RSA-039	REMOVED #2 FUEL OIL UST SITE, TANK #3338	199308
RSA-040	REMOVED USED OIL UST SITE, TANK #3617	199603
RSA-041	REMOVED USED OIL UST SITE, TANK #3636	199207
RSA-042	REMOVED O.W. SEP.STORAGE TANK #4812 SITE	199102
RSA-043	REMOVED USED OIL UST SITE, TANK #3665	199307
RSA-044	REMOVED USED OIL UST SITE, TANK #5435B	199102
RSA-046	INACTIVE CHEMICAL MUNITION & DEMIL SITE	2004
RSA-047	FORMER CHEMICAL TRAINING OPERATION	199909
RSA-050	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA	2004
RSA-051	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA	2004
RSA-055	INACTIVE SANITARY & INDUSTRIAL LANDFILL	200202

RESPONSE COMPLETE AEDB-R SITES

RSA-062	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA	200202
RSA-070	FORMER CHEMICAL DRUM STORAGE AREA	200202
RSA-071	HIGH EXPLOSIVE DROP TEST SITE AREA	199102
RSA-072	MORTAR SHELL TEST SITE AREA	199102
RSA-073	HIGH EXPLOSIVE IMPACT TEST SITE (WEST)	199102
RSA-074	HIGH EXPLOSIVE IMPACT TEST SITE (EAST)	199102
RSA-075	INACTIVE SOLID WASTE INCINERATOR	199102
RSA-076	REMOVED RDX/HMX FILTRATION UNIT 1, NORTH	199102
RSA-077	REMOVED RDX/HMX FILTRATION UNIT 1, SOUTH	199102
RSA-078	FORMER RDX/HMX FILTRATION UNIT 1 SUMP, NORTH	199102
RSA-079	FORMER RDX/HMX FILTRATION UNIT 1 SUMP, SOUTH	199102
RSA-080	FORMER RDX/HMX SUSPEN. TRANSFER PAD/SUMP	199102
RSA-081	REMOVED RDX/HMX CHARCOAL COLUMN DOLLY	199102
RSA-082	FORMER SPARGE UNIT SITE, BLDG 7595	200212
RSA-084	INACTIVE PROPELLANT WASTES STORAGE PAD	199708
RSA-085	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-086	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-090	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-091	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-092	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-093	FORMER RECLAIMED EMPTY DRUM STORAGE AREA	199102
RSA-094	CHLORINATED SOLVENT DISTILLATION UNIT 1	2004
RSA-097	CHLORINATED SOLVENT DISTILLATION UNIT 4	2004
RSA-098	CHLORINATED SOLVENT DISTILLATION UNIT 5	2004
RSA-099	ABANDONED PLATING SHOP TANKS & SUMPS	2004
RSA-100	REMOVED ABOVE GROUND USED OIL TANK	199102
RSA-101	ENCAPSULATED PESTICIDE CONTAM. SED. AREA	198803
RSA-102	DISMANTLED PESTICIDE MFG. PLANT SITE	198803
RSA-103	CAPPED PESTICIDE SETTLING LAGOON	198803
RSA-105	INACTIVE CLOSED DDT DRAINAGE DITCHES	198803
RSA-106	EARTHEN RETENTION DAMS FOR DDT MIGRATION	198803
RSA-107	CLOSED DDT CONTAM.SOILS/DEBRIS LANDFILL	198803
RSA-108	TEST RANGE 4 MISSILE IMPACT SITE	199708
RSA-111	CONSTRUCTION DEBRIS	199102
RSA-115	INACTIVE EAST SIDE BLOWDOWN LAGOON	2004
RSA-116	FORMER OPERATIONS AT SO SIDE LAGOON	200212
RSA-118	INACTIVE IND DITCH & DISCHARGE LAGOON	2004
RSA-119	ISP INTERNATIONAL MANUFACTURING PLANT	199102
RSA-120	MATTHEWS CAVE AND RAVINE	199102
RSA-121	PAINT SHOP/PAINT WASHOUT BOOTH, BLD.4762	199102
RSA-123	INACTIVE CEMENT PLANT SUMP	199102
RSA-124	DISMANTLED CALGON WTP PROCESS EQUIPMENT	199102
RSA-125	WASTE ACCUMULATION AREA, BLDG. 5477	199102
RSA-127	PHOTO LAB WASTEWATER SUMP, BLDG. 5451	199102
RSA-128	INACTIVE MUSTARD GAS DEMIL AREA	200202
RSA-129	FORMER BURN PAD & CAPPED WASHOUT PIT	2004
RSA-130	INACTIVE PHOTOLAB SEPTIC TANK-BLDG.7345	199710
RSA-131	ACTIVE OPEN DETONATION AREA	199102
RSA-132	DISMANTLED & REMOVED POPPING FURNACE	200202
RSA-133	INACTIVE ROCKET WASHOUT RACK & SUMP	200202
RSA-140	INACTIVE DISPOSAL AREA	2004

RESPONSE COMPLETE AEDB-R SITES

RSA-143	UNDERGROUND STORAGE TANK SPILL SITE	2004
RSA-B	ABANDONED ARMY PROPELLANT MFG. BLDG 7598	199708
RSA-E	FUEL OIL SPILL FROM TANK #5693	200212
RSA-F	FORMER OPERATIONS AT OPEN STORAGE YARD	200212

Schedule

Site No.	Phase	Year Complete	
OU-1			
RSA-143	RI/FS	FY04	
	RA	FY04	
	LTM	FY05	
OU-2			
RSA-D	RI/FS	FY08	
RSA-5	MOVE TO RCRA		
RSA-45	RI/FS	FY08	
	RD	FY10	
	RA	FY10	
RSA-48	RI/FS	FY08	
OU-3			
RSA-47	RI/FS	FY06	
	RA	FY10	
	RA(O)	FY14	
	LTM	FY15+	
OU-4			
RSA-114	REM	FY01	FENCING
	RI/FS	FY12	
OU-5			
RSA-49	REM	FY99	CAP
	REM	FY01	FENCING
	RI/FS	FY06	
	RD	FY09	
	RA	FY10	
	RA(O)	FY14	
	LTM	FY15+	
MSFC-27	REM	FY01	FENCING
	RI/FS	FY12	
OU-6			
RSA-10	IRA	FY99	P&T - NO LONGER OPERATING
	RI/FS	FY09	
	RA	FY10	
	LTM	FY15+	
RSA-53	REM	FY01	FENCING
	RI/FS	FY06	
	RD	FY06	
	RA	FY10	
	RA(O)	FY14	
	LTM	FY15+	
RSA-54/55	REM	FY01	FENCING
	RI/FS	FY09	
	RD	FY09	
	RA	FY10	
	RA(O)	FY14	
	LTM	FY15+	
RSA-56	REM	FY95	CAP
	RI/FS	FY05	
	RA	FY06	
	RA(O)	FY10	
	LTM	FY15+	

RSA-57	RI/FS	FY06	
	RD	FY05	
	RA	FY06	
RSA-59	REM	FY01	FENCING
	RI/FS	FY12	
	RD	FY13	
	RA	FY14	
	LTM	FY15+	
RSA-60	RI/FS	FY06	
	RD	FY07	
	RA	FY08	
	RA(O)	FY12	
	LTM	FY15+	
RSA-104	RI/FS	FY11	
	RD	FY11	
	RA	FY12	
RSA-117	RI/FS	FY10	
	RD	FY10	
	RA	FY11	
RSA-118	COMBINED WITH RSA-117		
RSA-122	REM	FY01	NO-DIG POLICY
	RI/FS	FY06	
	RD	FY06	
	RA	FY07	
RSA-139	REM	FY95	CAP
	REM	FY01	CAP EXTENSION/FENCING
	RI/FS	FY06	
	RA(O)	FY09	
	LTM	FY15+	
MSFC-74	RI/FS	FY12	
OU-7			
RSA-58	REM	FY01	FENCING/SIGNAGE
	RI/FS	FY06	
	RD	FY06	
	RA	FY08	
	RA(O)	FY12	
	LTM	FY15+	
RSA-112/128	REM	FY01	FENCING
	RI/FS	FY08	
	RA	FY09	
	LTM	FY15+	
RSA-113	REM	FY01	FENCING
	RI/FS	FY08	
	RD	FY08	
	RA	FY09	
	LTM	FY15+	
RSA-129	MOVE TO RCRA		
RSA-134	RI/FS	FY06	
	RA	FY06	
	RA(O)	FY10	
	LTM	FY15+	

OU-8			
RSA-52	REM	FY01	FENCING
	RI/FS	FY06	
	RD	FY08	
	RA	FY08	
	LTM	FY15+	
RSA-61/62	REM	FY01	FENCING
	RI/FS	FY10	
	RD	FY11	
	RA	FY12	
	RA(O)	FY15+	
RSA-109	RI/FS	FY12	
	RA	FY12	
	RA(O)	FY15+	
	LTM	FY15+	
OU-9			
RSA-130	REM	FY97	REMOVAL OF SEPTIC TANK
OU-10			
RSA-11	RI/FS	FY04	
	RA	FY06	
	LTM	FY10	
RSA-83	RI/FS	FY11	
	RD	FY11	
	RA	FY12	
	RA(O)	FY15+	
RSA-84	RC	FY97	
RSA-87	RI/FS	FY06	
	RD	FY06	
	RA	FY07	
	RA(O)	FY10	
	LTM	FY15+	
RSA-88	RI/FS	FY06	
	RD	FY06	
	RA	FY06	
	RA(O)	FY10	
RSA-89	RI/FS	FY06	
	RD	FY06	
	RA	FY06	
	RA(O)	FY10	
	LTM	FY15+	
RSA-94	RI/FS	FY06	
RSA-95	IRA	FY00	P&T - RECLASSIFIED AS A TREATABILITY STUDY
	RI/FS	FY06	
	RD	FY06	
	RA	FY07	
RSA-96	REM	FY00	P&T - RECLASSIFIED AS A TREATABILITY STUDY
	RI/FS	FY06	
	RD	FY06	
	RA	FY06	
	RA(O)	FY11	
	LTM	FY15+	
RSA-97	RI/FS	FY06	
RSA-98	RI/FS	FY06	
RSA-99	RI/FS	FY04	

RSA-138M	RI/FS	FY06	
	RA	FY07	
RSA-142	REM	FY97	P&T - RECLASSIFIED AS A TREATABILITY STUDY
	RI/FS	FY07	
	RD	FY08	
	RA	FY09	
	RA(O)	FY13	
	LTM	FY15+	
OU-11			
RSA-A	RI/FS	FY06	
RSA-B	RC	FY97	
RSA-C/82	RI/FS	FY08	
RSA-135H	RI/FS	FY06	
	RD	FY06	
	RA	FY07	
	LTM	FY11	
RSA-144	RI/FS	FY06	
	RD	FY07	
	RA	FY08	
	LTM	FY12	
OU-12			
RSA-46	MOVE TO RCRA		
RSA-64	RI/FS	FY09	
	RD	FY09	
	RA	FY10	
	RA(O)	FY14	
	LTM	FY15+	
RSA-140	COMBINE WITH RSA-046 AND MOVE TO RCRA		
OU-13			
RSA-115	MOVE TO RCRA		
OU-14			
RSA-13/132/133	IRA	FY97	P&T - RECLASSIFIED AS A TREATABILITY STUDY, NO LONGER OPERATING
	RI/FS	FY09	
	RA	FY10	
	LTM	FY15+	
RSA-14	IRA	FY99	SVE - RECLASSIFIED AS A TREATABILITY STUDY, NO LONGER OPERATING
	RI/FS	FY09	
	RA	FY10	
	LTM	FY15+	
OU-15			
RSA-32	RI/FS	FY06	
RSA-65	REM	FY01	FENCING
	RI/FS	FY10	
	RA	FY11	
	RA(O)	FY15+	
	LTM	FY15+	
RSA-66	REM	FY01	BARIUM DRUM REMOVAL/FENCING
	RI/FS	FY10	
	RA	FY11	
	RA(O)	FY15+	
	LTM	FY15+	

RSA-67	REM	FY01	FENCING
	RI/FS	FY10	
	RA	FY11	
	RA(O)	FY15+	
	LTM	FY15+	
RSA-68	REM	FY01	FENCING
	RI/FS	FY10	
	RA	FY11	
	RA(O)	FY15+	
	LTM	FY15+	
RSA-69/70	REM	FY01	FENCING
	RI/FS	FY12	
	RA	FY13	
	RA(O)	FY15+	
	LTM	FY15+	
RSA-110	REM	FY01	FENCING
	RI/FS	FY11	
	RA	FY12	
	LTM	FY15+	
OU-16			
RSA-108	RC	FY97	
OU-17			
RSA-50	MOVE TO RCRA		
RSA-51	MOVE TO RCRA		
RSA-63	REM	FY01	FENCING
	RI/FS	FY11	
	RA	FY12	
	RA(O)	FY15+	
	LTM	FY15+	
OU-18			
RSA-141	IRA	FY95	FENCING
	APPROACH NASA TO DISCUSS POSSIBILITY OF TRANSFERRING SITE		
MSFC-D	NASA HAS ASSUMED RESPONSIBILITY FOR THIS SITE		
MSFC-2	RI/FS	FY06	
	RD	FY06	
	RA	FY07	
MSFC-3	RI/FS	FY11	
	RD	FY11	
	RA	FY12	
	LTM	FY15+	
MSFC-34	RI/FS	FY10	
	RD	FY11	
	RA	FY12	
	LTM	FY15+	
MSFC-53	RI/FS	FY10	
	RA	FY10	
	LTM	FY14	
MSFC-60	RC	FY99	
MSFC-77	RI/FS	FY13	
MSFC-82	COMBINE WITH MSFC-003		

OU-19		
RSA-145	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-145A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-145B	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-146	RI/FS	FY09
	RD	FY10
	RA	FY11
	RA(O)	FY15+
	LTM	FY15+
RSA-146A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-147	RI/FS	FY09
	RD	FY10
	RA	FY11
	RA(O)	FY15+
	LTM	FY15+
RSA-147A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-148	RI/FS	FY09
	LTM	FY15+
RSA-148A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-149	RI/FS	FY11
	LTM	FY15+
RSA-149A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-150	RI/FS	FY08
	LTM	FY15+
RSA-150A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-151	RI/FS	FY09
	RD	FY10
	RA	FY11
	RA(O)	FY15+
	LTM	FY15+
RSA-151A	RI/FS	FY12
	RD	FY13
	RA	FY14

RSA-152	RI/FS	FY10
	RD	FY11
	RA	FY12
	RA(O)	FY15+
	LTM	FY15+
RSA-152A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-153	RI/FS	FY11
	LTM	FY15+
RSA-153A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-154	RI/FS	FY11
	LTM	FY15+
RSA-154A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-155	RI/FS	FY10
	LTM	FY15+
RSA-155A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-156	RI/FS	FY12
	RA	FY13
	RA(O)	FY15+
	LTM	FY15+
RSA-156A	RI/FS	FY12
	RD	FY13
	RA	FY14
RSA-157	RI/FS	FY12
	LTM	FY15+
RSA-157A	RI/FS	FY12
	RD	FY13
	RA	FY14

NO FURTHER ACTION SITES

AEDB-R #	AEDB-R Name	RC Date
MSFC-035	INACTIVE SUMP/TILED DRAIN FIELD-EAST TA	199102
MSFC-055	DISMANTLED STAUFFER CHEM.MFG. PLANT SITE	199909
MSFC-060	INACTIVE DELUGE WATER DRAINAGE SYS.	199909
MSFC-065	FORMER PESTICIDE STORAGE SURFACE DRAIN	199909
MSFC-082	INACTIVE CHEM MUNTS DEMIL/DISP TRENCHES	2004
MSFC-D	FORMER FUEL OIL STORAGE CONTAINMENT BERM	2004
RSA-001	FOX ARMY COMMUNITY HOSPITAL INCINERATOR	199102
RSA-002	IN-GROUND OIL/WATER SEPARATOR, BLDG.3338	199102
RSA-003	IN-GROUND OIL/WATER SEPARATOR, BLDG.3617	199102
RSA-004	IN-GROUND OIL/WATER SEPARATOR & WASHRACK	199102
RSA-005	INACTIVE WASTE ACCULATION AREA	2004
RSA-006	PAINT SHOP & SUMPS BLDG 3634 MOTOR POOL	199102
RSA-007	HAZARDOUS WASTE STORAGE AREA, BLDG. 3775	199102
RSA-008	INACTIVE SEWAGE TREATMENT PLANT 4	200212
RSA-009	INACTIVE SEWAGE TREATMENT PLANT #3	200212
RSA-012	ACTIVE BURN PANS	199102
RSA-015	HAZARDOUS WASTE STORAGE IGLOO, NO. 1	199102
RSA-016	HAZARDOUS WASTE STORAGE IGLOO, NO. 2	199102
RSA-017	HAZARDOUS WASTE STORAGE IGLOO, NO. 3	199102
RSA-018	HAZARDOUS WASTE STORAGE IGLOO, NO. 4	199102
RSA-019	HAZARDOUS WASTE STORAGE IGLOO, NO. 5	199102
RSA-020	HAZARDOUS WASTE STORAGE IGLOO, NO. 6	199102
RSA-021	HAZARDOUS WASTE STORAGE IGLOO, NO. 7	199102
RSA-022	HAZARDOUS WASTE STORAGE IGLOO, NO. 8	199102
RSA-023	HAZARDOUS WASTE STORAGE IGLOO, NO. 9	199102
RSA-024	HAZ. WASTE VACANT STORAGE IGLOO, NO. 10	199102
RSA-025	HAZ. WASTE VACANT STORAGE IGLOO, NO. 11	199102
RSA-026	HAZ. WASTE VACANT STORAGE IGLOO, NO. 12	199102
RSA-027	HAZ. WASTE VACANT STORAGE IGLOO, NO. 13	199102
RSA-028	IN-GROUND OIL/WATER SEPARATOR, 5693 AREA	199102
RSA-029	REDSTONE ARSENAL SANITARY SEWER SYSTEM	199102
RSA-030	CENTRAL OIL/WATER SEPARATOR	199102
RSA-031	CENTRAL OIL/WATER SEPARATOR STORAGE TANK	199102
RSA-033	PLATING ROOM FLOOR DRAINS, BLDG. 5432	199102
RSA-034	WASTE AVIATION FUEL TEMP. STORAGE AREA	199102
RSA-035	IN-GROUND OIL/WATER SEPARATOR, BLDG.4812	199102
RSA-036	IN-GROUND OIL/WATER SEPARATOR, BLDG.4832	199102
RSA-037	REMOVED USED OIL UST SITE, TANK #7846	199102
RSA-038	REMOVED USED OIL UST SITE, TANK #3240D	199606
RSA-039	REMOVED #2 FUEL OIL UST SITE, TANK #3338	199308
RSA-040	REMOVED USED OIL UST SITE, TANK #3617	199603
RSA-041	REMOVED USED OIL UST SITE, TANK #3636	199207
RSA-042	REMOVED O.W. SEP.STORAGE TANK #4812 SITE	199102
RSA-043	REMOVED USED OIL UST SITE, TANK #3665	199307
RSA-044	REMOVED USED OIL UST SITE, TANK #5435B	199102
RSA-046	INACTIVE CHEMICAL MUNITION & DEMIL SITE	2004
RSA-047	FORMER CHEMICAL TRAINING OPERATION	199909
RSA-050	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA	2004

RSA-051	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA	2004
RSA-055	INACTIVE SANITARY & INDUSTRIL LANDFILL	200202
RSA-062	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA	200202
RSA-070	FORMER CHEMICAL DRUM STORAGE AREA	200202
RSA-071	HIGH EXPLOSIVE DROP TEST SITE AREA	199102
RSA-072	MORTAR SHELL TEST SITE AREA	199102
RSA-073	HIGH EXPLOSIVE IMPACT TEST SITE (WEST)	199102
RSA-074	HIGH EXPLOSIVE IMPACT TEST SITE (EAST)	199102
RSA-075	INACTIVE SOLID WASTE INCINERATOR	199102
RSA-076	REMOVED RDX/HMX FILTRATION UNIT 1, NORTH	199102
RSA-077	REMOVED RDX/HMX FILTRATION UNIT 1, SOUTH	199102
RSA-078	FORMER RDX/HMX FILTRATION UNIT 1 SUMP, NORTH	199102
RSA-079	FORMER RDX/HMX FILTRATION UNIT 1 SUMP, SOUTH	199102
RSA-080	FORMER RDX/HMX SUSPEN. TRANSFER PAD/SUMP	199102
RSA-081	REMOVED RDX/HMX CHARCOAL COLUMN DOLLY	199102
RSA-082	FORMER SPARGE UNIT SITE, BLDG 7595	200212
RSA-084	INACTIVE PROPELLANT WASTES STORAGE PAD	199708
RSA-085	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-086	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-090	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-091	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-092	INACTIVE PROPELLANT WASTES STORAGE PAD	199102
RSA-093	FORMER RECLAIMED EMPTY DRUM STORAGE AREA	199102
RSA-094	CHLORINATED SOLVENT DISTILLATION UNIT 1 (site funded)	
RSA-097	CHLORINATED SOLVENT DISTILLATION UNIT 4 (site funded)	
RSA-098	CHLORINATED SOLVENT DISTILLATION UNIT 5 (site funded)	
RSA-099	ABANDONED PLATING SHOP TANKS & SUMPS	2004
RSA-100	REMOVED ABOVE GROUND USED OIL TANK	199102
RSA-101	ENCAPSULATED PESTICIDE CONTAM. SED. AREA	198803
RSA-102	DISMANTLED PESTICIDE MFG. PLANT SITE	198803
RSA-103	CAPPED PESTICIDE SETTLING LAGOON	198803
RSA-105	INACTIVE CLOSED DDT DRAINAGE DITCHES	198803
RSA-106	EARTHEN RETENTION DAMS FOR DDT MIGRATION	198803
RSA-107	CLOSED DDT CONTAM.SOILS/DEBRIS LANDFILL	198803
RSA-108	TEST RANGE 4 MISSILE IMPACT SITE	199708
RSA-111	CONSTRUCTION DEBRIS	199102
RSA-115	INACTIVE EAST SIDE BLOWDOWN LAGOON	2004
RSA-116	FORMER OPERATIONS AT SO SIDE LAGOON	200212
RSA-118	INACTIVE IND DITCH & DISCHARGE LAGOON	2004
RSA-119	ISP INTERNATIONAL MANUFACTURING PLANT	199102
RSA-120	MATTHEWS CAVE AND RAVINE	199102
RSA-121	PAINT SHOP/PAINT WASHOUT BOOTH, BLD.4762	199102
RSA-123	INACTIVE CEMENT PLANT SUMP	199102
RSA-124	DISMANTLED CALGON WTP PROCESS EQUIPMENT	199102
RSA-125	WASTE ACCUMULATION AREA, BLDG. 5477	199102
RSA-127	PHOTO LAB WASTEWATER SUMP, BLDG. 5451	199102
RSA-128	INACTIVE MUSTARD GAS DEMIL AREA	200202
RSA-129	FORMER BURN PAD & CAPPED WASHOUT PIT	2004
RSA-130	INACTIVE PHOTOLAB SEPTIC TANK-BLDG.7345	199710
RSA-131	ACTIVE OPEN DETONATION AREA	199102

RSA-132	DISMANTLED & REMOVED POPPING FURNACE	200202
RSA-133	INACTIVE ROCKET WASHOUT RACK & SUMP	200202
RSA-140	INACTIVE DISPOSAL AREA	2004
RSA-143	UNDERGROUND STORAGE TANK SPILL SITE	2004
RSA-B	ABANDONED ARMY PROPELLANT MFG. BLDG 7598	199708
RSA-E	FUEL OIL SPILL FROM TANK #5693	200212
RSA-F	FORMER OPERATIONS AT OPEN STORAGE YARD	200212

Redstone Arsenal IRP Schedule

(Based on current funding)

SITE #	SITE NAME	PHASE	2005	2006	2007	2008	2009	2010
MSFC-002	Inactive Abandoned Drum Disposal Site	RI/FS						
MSFC-003	Inactive Old Bone Yard Disposal Site	RI/FS						
		RD						
		RA						
		LTM						
MSFC-027	Inactive Waste Accumulation Area	RI/FS						
MSFC-034	Former Chemical Production Area	RI/FS						
		RD						
		RA						
		LTM						
MSFC-053	Former Propellent Storage Area	RI/FS						
		RA						
		LTM						
MSFC-074	Inactive Disposal Site	RI/FS						
MSFC-077	Inactive Open Burning/Disposal Pits	RI/FS						
RSA-010	Closed Unlined Sanitary Landfill	RI/FS						
		RA						
		LTM						
RSA-011	Inactive Sewage Treatment Plant	RA						
		LTM						
RSA-013	Unlined Inactive Open Burn Pads	RI/FS						
		RA						
		LTM						
RSA-014	Unlined Inactive Burn Trenches	RI/FS						
		RA						
		LTM						
RSA-032	Inactive Scrap Metal Storage Area	RI/FS						
RSA-045	Removed Underground Used Oil Storage	RI/FS						
		RD						
		RA						
RSA-048	Inactive Closed Sanitary Landfill	RI/FS						
		RA						
		RA(O)						
		LTM						
RSA-049	Capped Arsenic Waste Lagoons-West	RI/FS						
		RA						
		RA(O)						
		LTM						
RSA-052	Inactive Munitions Demil & Disposal Area	RI/FS						
		RD						
		RA						
		LTM						

Redstone Arsenal IRP Schedule

(Based on current funding)

SITE #	SITE NAME	PHASE	2005	2006	2007	2008	2009	2010
RSA-053	Inactive Sanitary & Industrial Landfill	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-054	Inactive Sanitary & Industrial Landfill	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-056	Capped Arsenic Waste Lagoons-South	RA						
		RA(O)						
		LTM						
RSA-057	Inactive Arsenic Waste Lagoon-	RD						
		RA						
RSA-058	Inactive Closed Rubble Fill & Waste Pile	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-059	Inactive Closed Construction Rubble Fill	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-060	Inactive Sanitary & Industrial Landfill	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-061	Inactive Munitions Demil & Disposal Area	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-063	Inactive Chemical Munition Storage Area	RI/FS						
		RA						
		RA(O)						
		LTM						
RSA-064	Inactive Munitions Demil & Disposal Area	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-065	Former Chemical Drum Storage Area	RI/FS						
		RA						
		RA(O)						
		LTM						
RSA-066	Inactive Ash Disposal Site & Demil Area	RI/FS						
		RA						
		RA(O)						
		LTM						
RSA-067	Former Chemical	RI/FS						

Redstone Arsenal IRP Schedule

(Based on current funding)

SITE #	SITE NAME	PHASE	2005	2006	2007	2008	2009	2010
	Drum Storage Area	RA						
		RA(O)						
		LTM						
RSA-068	Inactive Toxic Chemical Disposal Area	RI/FS						
		RA						
		RA(O)						
		LTM						
RSA-069	Former Chemical Drum Storage Area	RI/FS						
		RA						
		RA(O)						
		LTM						
RSA-083	Inactive Spray Paint Booth Sump	RI/FS						
		RD						
		RA						
		RA(O)						
RSA-087	Inactive Temporary Storage Area	RD						
		RA						
		RA(O)						
		LTM						
RSA-088	Inactive Temporary Storage Area	RD						
		RA						
		RA(O)						
RSA-089	Inactive Temporary Storage Area	RD						
		RA						
		RA(O)						
		LTM						
RSA-095	Chlorinated Solvent-	RD						
		RA						
RSA-096	Chlorinated Solvent- Distillation Unit 3	RD						
		RA						
		RA(O)						
		LTM						
RSA-104	Abandoned ISP Waste Discharge Line	RI/FS						
		RD						
		RA						
RSA-109	Former Chemical Munitions Staging Area	RI/FS						
		RA						
		RA(O)						
		LTM						
RSA-110	Former Chemical Drum Storage Area	RI/FS						
		RA						
		LTM						
RSA-112	Former Demilitarization & Disposal Site	RI/FS						
		RA						
		LTM						
RSA-113	Inactive Disposal Trenches & Burn Pits	RI/FS						
		RD						
		RA						
		LTM						
RSA-114	Inactive Madkin Mountain Rock Quarry	RI/FS						
RSA-117	Former Liquid	RI/FS						

Redstone Arsenal IRP Schedule

(Based on current funding)

SITE #	SITE NAME	PHASE	2005	2006	2007	2008	2009	2010
	Caustic Mfg. Plant Site	RD						
		RA						
RSA-122	Dismanteled Lewisite Mfg	RD						
		RA						
RSA-126	Inactive Open Burn Trench	RI/FS						
		RD						
		RA						
RSA-134	Inactive Disposal Trench & Burn Pit	RI/FS						
		RA						
		RA(O)						
		LTM						
RSA-135H	Inactive Sump for 1.1 Propellant Wastes	RI/FS						
		RD						
		RA						
		LTM						
RSA-138M	Inactive Temporary	RI/FS						
		RA						
RSA-139	Capped Arsenic Waste Pond-	RA(O)						
		LTM						
RSA-141	4.2 Inch Mortar Disposal Site, Bldg 4656	RI/FS						
RSA-142	Chlorinated Solvent Spill Area	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-144	Chlorinated Solvent Distillation Unit 6	RI/FS						
		RD						
		RA						
		LTM						
RSA-145	Groundwater Unit GW-01	RI/FS						
		LTM						
RSA-145A	GW-01 Landfill 1	RI/FS						
		RD						
		RA						
RSA-145B	GW-01 Unidentified Sites	RI/FS						
		RD						
		RA						
RSA-146	Groundwater Unit GW-02	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-146A	GW-02 Unidentified Sites	RI/FS						
		RD						
		RA						
RSA-147	Groundwater Unit GW-03	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-147A	GW-03	RI/FS						

Redstone Arsenal IRP Schedule

(Based on current funding)

SITE #	SITE NAME	PHASE	2005	2006	2007	2008	2009	2010
	Unidentified Sites	RD						
		RA						
RSA-148	Groundwater Unit	RI/FS						
	GW-04	LTM						
RSA-148A	GW-04	RI/FS						
	Unidentified Sites	RD						
		RA						
RSA-149	Groundwater Unit	RI/FS						
	GW-05	LTM						
RSA-149A	GW-05	RI/FS						
	Unidentified Sites	RD						
		RA						
RSA-150	Groundwater Unit	RI/FS						
	GW-06	LTM						
RSA-150A	GW-06	RI/FS						
	Unidentified Sites	RD						
		RA						
RSA-151	Groundwater Unit	RI/FS						
	GW-07	RD						
		RA						
		RA(O)						
		LTM						
RSA-151A	GW-07	RI/FS						
	Unidentified Sites	RD						
		RA						
RSA-152	Groundwater Unit	RI/FS						
	GW-08	RD						
		RA						
		RA(O)						
		LTM						
RSA-152A	GW-08	RI/FS						
	Unidentified Sites	RD						
		RA						
RSA-153	Groundwater Unit	RI/FS						
	GW-09	LTM						
RSA-153A	GW-09	RI/FS						
	Unidentified Sites	RD						
		RA						
RSA-154	Groundwater Unit	RI/FS						
	GW-10	LTM						
RSA-154A	GW-10	RI/FS						
	Unidentified Sites	RD						
		RA						
RSA-155	Groundwater Unit	RI/FS						
	GW-11	LTM						
RSA-155A	GW-11	RI/FS						
	Unidentified Sites	RD						
		RA						
RSA-156	Groundwater Unit	RI/FS						
	GW-12	RA						
		RA(O)						
		LTM						
RSA-156A	GW-12	RI/FS						

Redstone Arsenal IRP Schedule

(Based on current funding)

SITE #	SITE NAME	PHASE	2005	2006	2007	2008	2009	2010
	Unidentified Sites	RD						
		RA						
RSA-157	Groundwater Unit GW-13	RI/FS						
		LTM						
RSA-157A	GW-13 Unidentified Sites	RI/FS						
		RD						
		RA						
RSA-183	Former Lewisite Production Facility	RI/FS						
		RD						
		RA						
		RA(O)						
		LTM						
RSA-A	Inactive Propellant Storage Wells	RI/FS						
RSA-C	Abandoned Army Propellant Mixer Bldg	RI/FS						
RSA-D	Paint Booths and Shed	RI/FS						
RSA-184	Integrator OU 1 - Huntsville Spring	RI/FS						
		LTM						
RSA-185	Integrator OU 2 - TN River	RI/FS						
		LTM						

Remediation Activities

Past REM/IRA/RA

OU-1
- RSA-143 Insitu oxidation began in FY03,

OU-4
- RSA-114 Fencing to prevent access to quarry was installed in 2001. Quarry bottom has suspected chemical-filled ordnance and drums, as well as piles of corroded gas mask cannisters.

OU-5
- RSA-49 RCRA cap installed over arsenic-contaminated soil in 1999.
- MSFC-27 Fencing was installed in 2001 to prevent access to contaminated dirt piles.

OU-6
- RSA-10 Groundwater pump and treat operated for 3 years (June 1996 until August 1999) for VOC contamination.
- RSA-53 Fencing was installed in 2001 to prevent access to the old landfill/disposal area. Cap extension was completed in 2001.
- RSA-54/55 Fencing was installed in 2001 to prevent access to former landfill.
- RSA-56/139 Clay cap installed over arsenic contaminated soil in 1995. Fencing was installed in 2001 to prevent access.
- RSA-59 Fencing was installed in 2001 to prevent access to former landfill.
- RSA-126 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.

OU-7
- RSA-58 Fencing was installed in 2001 to prevent access to old landfill/disposal area.
- RSA-112/128 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.
- RSA-113 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.

OU-8
- RSA-52 Fencing was installed in 2001to prevent access to area containing suspected chemical-filled UXO.
- RSA-61 Fencing was installed in 2001to prevent access to area containing suspected chemical-filled UXO.
- RSA-62 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.

OU-9
- RSA-130 Removal of septic tank, associated drainfield and piping, and impacted soils for metal, primarily silver, contamination in 1997.

OU-10
- RSA-142 Groundwater pump and treat system installed and operating since March 1997 for VOC contamination.
- RSA-95/96 Groundwater pump and treat system installed and operating since August 2000 for VOC contamination.

OU-12
- RSA-64 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.

Remediation Activities

OU-14
- RSA-13 Groundwater pump and treat system installed and operating since 1997 for VOC contamination. The system was shut down in 2000 due to elevated levels of AP in the effluent which was being discharged 1 mile upstream of the arsenal's drinking water intake.
- RSA-14 Soil vapor extraction system installed and operating since 1999 for VOC contamination. The system was shut off in 2000 when the associated plant at RSA-13 was shut down. The SVE system had met its goals. Both the RSA-13/14 systems have been reclassified as treatability studies instead of IRAs.

OU-15
- RSA-65 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.
- RSA-66 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.
- RSA-67 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.
- RSA-68 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.
- RSA-69 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.
- RSA-110 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.

OU-17
- RSA-63 Fencing was installed in 2001 to prevent access to area containing suspected chemical-filled UXO.

Future REM/IRA/RA

RA at MSFC-003, 034, 053, RSA-010, 011, 013, 014, 045, 048, 049, 052, 053, 054, 056, 057, 058, 059, 060, 061, 063, 064, 065, 066, 067, 068, 069, 083, 087, 088, 089, 095, 096, 109, 110, 112, 113, 117, 122, 126, 134, 135H, 138M, 142, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 183

COMMUNITY INVOLVEMENT

In 1994, Redstone Arsenal established a Technical Review Committee (TRC) to provide a forum for interested parties to discuss and provide input into restoration activities. This was in accordance with requirements outlined by 10 USC 27(c), Executive Order 12580, “Superfund Implementation” and Army Regulation 200-1.

Redstone Arsenal has conducted TRC meetings along with public availability sessions, environmental open houses, and public meetings to generate interest in the environmental program. A Community Relations Plan was also developed to assist in community involvement. During these community involvement efforts, Redstone solicited potential interest in forming a Restoration Advisory Board. Some of the tools used to solicit interest included RAB booths at public meetings, fact sheets, RAB sign-up sheets, comment cards and RAB applications. Currently, there is not enough sustainable community interest to establish a RAB. We will continue to solicit interest on an annual basis.

The Community Relations Plan documents the chronology of historical events that RSA has conducted to solicit community involvement regarding environmental restoration efforts.

Previous Studies

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
1	1	Redstone Arsenal, AL Report on Water Control Plans	USACE (Mobile)	Jan-62		Summarizes plans of water control at RSA
1A	1	Preliminary Engineering Report on Industrial Waste Treatment	Whitman, Requart and Associates	Jan-66		Report for development of handling, treating, disposing options of industrial waste for Marshall Space Flight Center.
1B	1	Final Report Industrial Waste, Stream Pollution Survey RSA, AL	COE, Mobile District	Feb-66		Investigation of all facilities discharging industrial and domestic waste into streams on RSA.
2	1	Sanitary Engineer Survey & Industrial Waste RSA, AL	U.S. Army Environmental Hygiene Agency	May-70		Study of sanitary and industrial wastes
3	1	Final Report - Concept-ualization, Evaluation, Definition, & Develop-ment of a MSFC Environmental Quality Program	UAH & MSFC	May-72		Outlines design and implementation of a MSFC environmental program
3A	1	Water Quality Monitoring Consultation No. 24-060-74/75 RSA, AL	U.S. Army Environmental Hygiene Agency	Apr-74		Water quality monitoring study
3B	1	Potable/Recreational Water Quality and Wastewater Engineering Survey No. 24-0606-77 RSA, AL	U.S. Army Environmental Hygiene Agency	Aug-76		Water quality study report
4	1	Water Quality Monitor-ing RSA, AL	U.S. Army Environmental Hygiene Agency	Feb-77		Provides detailed information of sampling results including lab data
5	1	Water Quality Engin-eering Special Study - Miscellaneous Point Source Discharges	U.S. Army Environmental Hygiene Agency	Jun-77		Study of miscellaneous water sources at RSA
6	1	Water Quality Evalu-ation of Environmental Degradation from prior DDT Waste Disposal RSA, AL	U.S. Army Environmental Hygiene Agency	Jun-77		Identifies and evaluates impact of prior DDT waste disposal at RSA
6A	1	Installation Assessment of Redstone Arsenal, AL, Record Evaluation Report # 118	Department of the Army - Office of the Project Manager for Chemical Demilitarization and Installation Restoration	Dec-77		Provides results of an installation assessment of RSA
6B	1	Report of Site Investigation for DDT Landfill Site at RSA, AL	Testing, Inc.	Oct-78		Contains field and laboratory data for various SWMU sites
6C	1	Report of Evaluation and Recommendations for Calgon Corporation Carbon Absorption Facility, RSA, AL	Testing, Inc.	Nov-78		Results of a foundation investigation for a proposed carbon absorption facility to be located in a former landfill on RSA.
6D	1	Report of Geohydrology Characterization and Well/Lysimeter Installation at RSA, AL	Testing, Inc.	Jan-79		Collection of field and laboratory data for 25 test borings, RS-015 through RS-039.
6E	1	Report of Geohydrology Characterization, Survey of Wells & Lysimeter Locations and Monitor Well Installation at RSA, AL	Testing, Inc.	Dec-79		Collection of field and laboratory data for 13 test borings, RS-040 through RS-054, excluding RS-043 and 051.
7	1	Final - Contract Report - Engineering and Environmental Study of DDT Contamination of Huntsville Spring Branch, Indian Creek and Adjacent Lands and Waters - Wheeler Res-ervoir, AL Vol. I, II, & III	Water & Air Research, Inc.	Nov-80		Engineering and environmental impact study of remediation procedures concerning DDT in the Hsv. Spring Branch / Indian Creek System
8	1	Preliminary Survey, DDT Abatement Program Monitoring and Surveillance RSA, AL	Hittman Associates, Inc.	Jun-81		Study of remediation procedures concerning DDT in the Hsv. Spring Branch / Indian Creek System
9	1	Ground Water Monitoring Program	U.S. Army MICOM	Jul-81		Provides detailed information of sampling results including lab data
9A	1	Report of Geohydrology Characterization, Survey of Wells and Monitor Well Installation at RSA, AL	Testing, Inc.	Oct-81		Report of field and laboratory data for 4 test borings, RS-077 through RS-080.

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
10	1	RSA Installation Res-toration Program Sum-mary - Final Report - Vol. I, II, & III	Water & Air Research, Inc.	Mar-83		Summarizes RSA's Installation Re-toration Program
11	1	U.S. Army MICOM RSA, AL Ground Water & Surface Water Moni-toring Program	U.S. Army MICOM	Mar-83		Provides detailed information of sampling results including lab data
12	1	Ground Water Quality Assessment RSA, AL	U.S. Army Environmental Hygiene Agency	Sep-83		Assesses the quality of ground water on RSA
13	1	Phase I - Ground Water Quality Assessment RSA, AL	U.S. Army Environmental Hygiene Agency	Jun-84		Assesses the quality of ground water on RSA
14	1	Surface Water and Ground Water Monitor-ing Data	U.S. ARMY MICOM EMO	1981-1984		Provides detailed information of sampling results including lab data
15	1	Technical Specifications for the Huntsville Reme-dial Action	Waldemar S. Nelson and Company, Inc.	Jun-85		Technical Specifications for the Huntsville Remedial Action
16	1	404/26A Permit Applic-ation for the Huntsville Remedial Action Plan RSA, AL	Waldemar S. Nelson and Company, Inc.	Jun-85		404/26A Permit Application for the Huntsville Remedial Action Plan
17	1	Environmental Analysis for the Hsv. Remedial Action Plan	Waldemar S. Nelson and Company, Inc.	Jun-85		Environmental Analysis for the Hsv. Remedial Action Plan
18	1	Environmental Assess-ment and Permit Work-book on Refuse Fired Steam Plant Supplying 200 PSIG Steam to RSA, AL	Hayden-Wegman Consulting Engineers	Jul-85		Environmental Assessment and Permit Work-book on Refuse Fired Steam Plant Supplying 200 PSIG Steam to RSA, AL
19	1	Final - Environmental Impact Study For Regu-latory Actions Assoc-iated with the Olin Corp. Remedial Action Plan to Isolate DDT from the people and environment in the Hsv. Spring Branch - Indian Creek System, Wheeler Reservoir, AL	Water and Air Research, Inc.	Feb-86		Environmental impact study of remediation procedures concerning isolation of DDT from people and the environment in the Hsv. Spring Branch / Indian Creek System
19A	1	RSA Part B Permit and Application	U.S. Army MICOM	Mar-86		Presents the RCRA Part B Permit and Application
19B	1	RCRA Closure Certification Report Shields Road Yard NASA-MSFC	Harmon Engineering & Associates, Inc.	Jun-86	OU15, RSA 32	
20	1	Report on the Remedial Action to Isolate DDT from people and the environment in the Hsv. Spring Branch / Indian Creek System, Wheeler Reservoir, AL (U.S. v. Olin Corp. Con-sent Decree) May 31, 1983 - June 30, 1986	USEPA (Reg. IV)	Jul-86		Report of remediation procedures concerning isolation of DDT from people and the environment in the Hsv. Spring Branch / Indian Creek System
21	1	404/26A Permit Applic-ation for the Huntsville Remedial Action Plan RSA,AL Lower Reach A	Waldemar S. Nelson and Company, Inc.	Sep-86		404/26A Permit Application for the Huntsville Remedial Action Plan RSA,AL Lower Reach A
21A	1	Chemical Weapons Movement History Compilation	William R. Brankowitz	Apr-87		History of chemical weaponse movement operations.
22	1	Final - Standard Oper-ating Procedures - Re-medial Investigation / Feasibility Study RSA, AL	P. E. LaMoreaux & Associates, Inc.	Jul-87		Contains guidelines for standard operations of remedial investigation / feasibility studies at RSA
23	1	Huntsville Spring Branch / Indian Creek Long-Term Monitoring Program Annual Report	Olin-Environmental Affairs Dept.	Aug-87		Annual report of results concerning the monitoring program of HSB and Indian Creek
24	2	Work Plan for Baseline Environmenal Monitor-ing Study U.S. Army/ GAF Chemical Corp. Hsv., AL Plant	AWARE, Inc.	Oct-87		Contains monitoring and risk assessment results concerning GAF Chemical Corp.
24A	2	Chemical Weapons Movement History Compilation	Department of the Army - Office of the Project Manager for Chemical Demilitarization and Installation Restoration	Feb-87		Provides details on movement and demilitarization of chemical weapons
24B	2	Geotechnical Requirements for Drilling, Monitoring Wells, Data Acquisituin, and Reports	U.S. Army Toxic & Hazardous Materials Agency	Mar-87		Provides the technical requirements for geotechnical exploration and reporting

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24C	2	Remedial Action Decision Document for the DDT Contaminated Areas on Redstone Arsenal	U.S. Army Toxic & Hazardous Materials Agency	Jan-88		Presents the selected remedy for the remedial action at the DDT contaminated areas on Redstone Arsenal
25	2	Baseline Environmenal Monitoring Study U.S. Army/GAF Chemical Corp. Hsv.,AL Plant	AWARE, Inc.	Mar-88		Contains monitoring and risk assessment results concerning GAF Chemical Corp.
26	2	Semiannual Report No. 4 - DDT Investigation Hsv., AL	Olin-Environmental Affairs Dept.	Mar-88		Semiannual report of results concerning DDT investigation of HSB and Indian Creek
27	2	Preliminary Assessment and Site Inspection for MSFC	Harmon Engineering & Associates, Inc.	Apr-88		Describes results of preliminary assessment and site inspection of MSFC
28	2	Final - Confirmation Re-port - Unit 3 Investigat-ions (RSA) Vol. I - VI	P.E. LaMoreaux & Associates, Inc.	Jul-88	48, 49, 53, 60, 59, 54/55, 66, 68	Contains final reports of Unit 3 investigations
29	2	Remedial Action Plans for RSA, AL - Unit 1 (DDT and Sanitary Landfills) and Unit 2 (Open Burn/Open Demo-lition Area)	P.E. LaMoreaux & Associates, Inc.	Sep-88	10, 12, 13, 14, 131, 132, 133	Contains remedial action plans for Units 1 and 2
30	2	Final-Remedial Investi-gation Engineering Re-port RSA, AL Unit 1- (DDT & Sanitary Land-fills) and Unit 2-(Open Burn/ Open Demolition Area) Vol I - VII	P.E. LaMoreaux & Associates, Inc.	Sep-88	10, 12, 13, 14, 131, 132, 133	Contains engineering report of re-medial investigation of Units 1 and 2
31	2	Surface Water and Ground Water Monitor-ing Data	U.S. ARMY MICOM EMO	1985-1988		Provides detailed information of sampling results including lab data
32	2	Preliminary Assessment of CERCLA Candidate Sites and Related Sites of Possible Evironmental Significance - MSFC Hsv., AL	Harmon Engineering & Associates, Inc.	Feb-89		Identifies MSFC as a site of environ-mental significance and a possible CERCLA site
33	3	RCRA Facility Assess-ment - Preliminary Re-view Report MSFC - Hsv., AL	A.T. Kearney, Inc.	Mar-89		Identifies and evaluates environ-mental conditions at MSFC
34	3	MICOM Environmental Program Plan - RSA, AL	U.S. Army MICOM EMO	Mar-89		Provides information concerning staus and compliance of RSA's environmental program
35	3	Redstone Arsenal, AL Environmental Program	RSA	Mar-89		Provides information concerning staus and compliance of RSA's environmental program
36	3	Ambient Air Quality Consultant - Redstone Arsenal Support Activity RSA, AL	U.S. Army Environmental Hygiene Agency	Mar-89		Contains information pertaining to air quality at RSA
36A	3	Technical Escort Attachment Activities Huntsville, AL	Department of the Army - Office of the Project Manager for Chemical Demilitarization and Installation Restoration	Mar-89		Provides basic guidelines for technical escort personnel
37	3	Upgrade - Confirmation Report and Assessment of Remedial Alternatives for Selected Unit 3 Sites (RSA) Vol. I (text); Vol. II (App. A); Vol. III (App. B); Vol. IV (App. B (cont.)) Vol. V (App. B (concluded))	P.E. LaMoreaux & Associates, Inc.	Apr-89	49, 48, 53, 60, 59, 54/55, 66, 68	Provides possible alternative actions for remediation of selected Unit 3 sites at RSA
38	3	Results and Conclus-ions - Sampling Rounds 1-4 for RSA Unit 4 (Perimeter Wells) Invest-igations Vol. I & II	P. E. LaMoreaux & Associates, Inc.	May-89		Provides results of ground water monitoring of perimeter wells at RSA
39	3	Interim RCRA Facility Investigation of the MSFC Hsv., AL	A.T. Kearney, Inc.	Jul-89		Identifies and evaluates environ-mental conditions at MSFC
40	3	Interim RCRA Facility Assessment of the RSA Hsv., AL	A.T. Kearney, Inc.	Sep-89		Identifies and evaluates environ-mental conditions at RSA
41	3	Soil and Gas Sampling Plan - RCRA Facility Investigation for RSA Hsv., AL	Geraghty & Miller	Oct-89		Describes procedures for soil and gas sampling at RSA
42	3	Draft -Work Plan- RCRA Facility Investigation Unit 1 RSA, AL	Geraghty & Miller, Inc.	Nov-89	10	Details work procedures for facility investigations at Unit 1

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43	3	Surface Water and Ground Water Monitor-ing Data	U.S. ARMY MICOM EMO	1989-		Provides detailed information of sampling results including lab data
44	3	Environmental Baseline Assessment-Summary & Laboratory Reports Vol. I, II, & III	CH2M Hill, Inc.	Feb-90		Assesses the potential health risks to humans and ecological receptors posed by various areas at RSA
44A	3	Procedures for Accomplishing Collection, Sampling, and Analysis Services, Revision 1, RSA, AL	BAMSI, Inc.	Mar-90		Provides guidelines for collection, sampling, and analysis at RSA
45	3	Huntsville Spring Branch / Indian Creek Long-Term Monitoring Program Annual Report No. 2	Olin-Environmental Affairs Dept.	Apr-90		Annual report of results concerning the monitoring program of HSB and Indian Creek
46	3	Final - Safety, Health, and Emergency Re-sponse Plan for RCRA Facility Investigation	Geraghty & Miller, Inc.	Jun-90		Details the procedures, minimum health and safety requirements, and emergency response for personnel involved in remedial activities at RSA
47	3	Final-Work Plan- RCRA Facility Investigations at Unit 1, Unit 2, & Select-ed Unit 3 Areas	Geraghty & Miller Inc.	Jun-90	10, 12, 13, 14, 131, 132, 133, 49, 48, 53, 60, 59, 54/55, 66, 68	Describes work procedures of facility investigations at Units 1, 2, and 3
48	4	Second Report on the Remedial Action to Isolate DDT from people and the environment in the Hsv. Spring Branch / Indian Creek System, Wheeler Reservoir, AL (U.S. v. Olin Corp. Con-sent Decree) July 1 1986 - June 30, 1990	USEPA (Reg. IV)	Nov-90		Report of remediation procedures concerning isolation of DDT from people and the environment in the Hsv. Spring Branch / Indian Creek System
49	4	First Quarterly Progress Report-RCRA Facility Investigations Unit 1, Unit 2, & Selected Unit 3 Areas	Geraghty & Miller Inc.	Nov-90	10, 12, 13, 14, 131, 132, 133, 49, 48, 53, 60, 59, 54/55, 66, 68	Progress report of RCRA facility investigations at Units 1, 2, and 3
50	4	Surface Water and Ground Water Monitor-ing Data	U.S. ARMY MICOM EMO	1990-		Provides detailed information of sampling results including lab data
51	4	Identification and Eval-uation of Potential SWMUs and Areas of Concern at RSA, AL	Geraghty & Miller Inc.	Feb-91		Identifies and evaluates potential SWMUs and Areas of Concern at RSA, AL
52	4	Second Quarterly Progress Report-RCRA Facility Investigations Unit 1, Unit 2, & Select-ed Unit 3 Areas	Geraghty & Miller Inc.	Feb-91	10, 12, 13, 14, 131, 132, 133, 49, 48, 53, 60, 59, 54/55, 66, 68	Progress report of RCRA facility investigations at Units 1, 2, and 3
53	4	Huntsville Spring Branch / Indian Creek Long-Term Monitoring Program Annual Report No. 3	Olin-Environmental Affairs Dept.	Apr-91		Annual report of results concerning the monitoring program of HSB and Indian Creek
54	4	Ground-Water Quality Assessment Report - MSFC	ERC Environmental & Energy Services Co., Inc.	Jun-91		
55	4	Draft - Site Specific Safety, Health, and Emergency Response Plan for RCRA Facility Investigation at RSA	USACE (Mobile)	Jul-91		Details the procedures, minimum health and safety requirements, and emergency response for personnel involved in remedial activities at RSA
56	4	RCRA Facility Investi-gation - Well Installation Report for SWMUs RSA-58, 115, 116, 129, 140 (Target Seeker Area), and 142 (RSA-G)	USACE (Mobile)	Sep-91	58, 115, 116, 129, 140, 142	Describes procedures for installation of monitoring wells at RSA-58, 115, 116, 129, 140, 142
57	4	Final - Initial Sampling Plan for SWMUs RSA-58, 115, 116, 129, 140 (Target Seeker Area), and 142 (RSA-G)	Engineering Science Inc.	Sep-91	58, 115, 116, 129, 140, 142	Describes procedures for initial sampling of RSA-58, 115, 116, 129, 140, 142
58	4	Air Toxics Transport Task Report	Physical Research, Inc.	Oct-91		Report of air toxics transport task
59	4	RCRA Facility Investi-gation - RFI Work Plan for RSA-58, 115, 116, 129, 140, and 142	Enginering Science Inc.	Nov-91	58, 115, 116, 129, 140, 142	Details the work procedures for investigation of RSA-58, 115, 116, 129, 140, and 142
60	5	RSA - RCRA Facility Investigation - Quality Control Summary Report Attachment IV Laboratory Data Phase I Vol. I-VII	Geraghty & Miller, Inc.	1991-		Contains a quality control summary of RCRA facility investigations at RSA

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61	5	RSA - RCRA Facility Investigation - Quality Control Summary Report Attachment III (Field Sampling Logs Phase I)	Geraghty & Miller, Inc.	1991-		Contains a quality control summary of RCRA facility investigations at RSA
62	5	RSA - RCRA Facility Investigation - Quality Control Summary Report Attachment I (A - E Quality Control Sheets) and Attachment II (Chain of Custody Records)	Geraghty & Miller, Inc.	1991-		Contains a quality control summary of RCRA facility investigations at RSA
63	5	Quality Control Sum-mary Report - Phase I - RCRA Facility Invest-gation at Units 1, 2, & 3	Geraghty & Miller, Inc.	Jan-92		Contains a quality control summary of RCRA facility investigations at RSA
64	5	RSA - RCRA Facility Investigation - Quality Control Summary Report Phase II, Vol. I -IV, Laboratory Data	Geraghty & Miller, Inc.	1992-		Summarizes phase II quality control techniques and procedures at given RSA sites
65	5	Surface Water and Ground Water Monitor-ing Data	U.S. ARMY MICOM EMO	1991-1992		Provides detailed information of sampling results including lab data
66	5	Final - Preliminary Site Inspection for RSA, AL	Advanced Sciences, Inc.	Jan-92		Provides information concerning environmental conditions at RSA
67	5	Final Draft Report - Review of Hsv. Spring Branch / Indian Creek Remedial Plan and Monitoring Program	Woodward-Clyde Consultants	Jan-92		Report of results concerning the monitoring program of HSB and Indian Creek
68	5	Final - RCRA Facility Investigation - Health and Safety Plan for SWMUs RSA-58, 115, 116, 129, 140 (Target Seeker Area), and 142 (RSA-G)	Engineering Science Inc.	Mar-92	58, 115, 116, 129, 140, 142	Addresses protective measures to be instituted for protection of on-site personnel, the public, and the environment from physical and chemical hazards at RSA-58, 115, 116, 129, 140, 142
69	5	Industrial Waste Treatment Facility - Ground Water Quality Assessment Report for MSFC	CH2M Hill, Inc.	Apr-92		Contains ground water assessment reports for industrial waste treatment facilities at MSFC
70	6	Final - Phase I Report - RCRA Facility Investi-gations at Unit 1, Unit 2, and Selected Unit 3 Areas Vol. I & II	Geraghty & Miller Inc.	May-92	10, 12, 13, 14, 131, 132, 133, 49, 48, 53, 60, 59, 54/55, 66, 68	Provides initial procedures and results for activities performed at RSA-58, 115, 116, 129, 140, 142
71	6	Huntsville Spring Branch / Indian Creek Long-Term Monitoring Program Annual Report No. 4	Olin-Environmental Affairs Dept.	May-92		Annual report of results concerning the monitoring program of HSB and Indian Creek
72	6	Final Draft - Hazard Ranking System, Score Summary Report for RSA, AL	Advanced Sciences, Inc.	Jul-92		Summarizes the hazard ranking system and RSA's hazard ranking score
73	6	Huntsville Spring Branch Hydrographic Map	Woodward-Clyde Consultants	Dec-92		Contains hydrographic map of Huntsville Spring Branch
74	6	RCRA Facility Investigation - Work Plan at MSFC	CH2M Hill, Inc.	Jan-93		Contains work procedures for facility investigations at MSFC
75	6	Corrective Measures Studies - Unit 1 (Waste Oil Pits & Closed Land-fill), RSA, AL	Environmental Science & Engineering, Inc.	Jan-93	10	Contains results of corrective measures studies at Unit 1
76	6	RCRA Facility Invest-igation - Phase I Report for SWMUs RSA-58, 115, 116, 129, 140 (Target Seeker Area), and 142 (RSA-G) Volumes I & II (Vol. II contains analytical results)	Engineering Science Inc.	Feb-93	58, 115, 116, 129, 140, 142	Provides initial procedures and results for activities performed at RSA-58, 115, 116, 129, 140, 142
77	6	Work Plan for Remedial Action Drum Removal	OHM Remediation Services Corp.	Feb-93		Contains procedures for removal of drums containing hazardous wastes
78	6	Final - Work Plan - Interim Corrective Meas-ure Design at Unit 2, RSA, AL	Ebasco	Feb-93	12, 13, 14, 131, 132, 133	Details the work procedures for corrective measures at Unit 2
79	6	Quality Control Sum-mary Report - Phase II - RCRA Facility Investi-gations at Unit 1, Unit 2, and Selected Unit 3 Areas	Geraghty & Miller Inc.	Mar-93	10, 12, 13, 14, 131, 132, 133, 49, 48, 53, 60, 59, 54/55, 66, 68	Summarizes quality control tech-niques and procedures at Units 1, 2, and 3
80	6	Corrective Measures Studies for RSA, AL - Draft - Comments and Responses	Environmental Science & Engineering, Inc.	Mar-93		Contains public comments and responses concerning corrective measures at RSA
81	6	Corrective Measures Sudies for RSA, AL	Environmental Science & Engineering, Inc.	Apr-93		Outlines compliance guidelines for corrective measures at RSA

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82	7	RCS 1383 Report for RSA	Environmental Science & Engineering, Inc.	Apr-93		RCS 1383 Report for RSA
83	7	Final - Work Plan - RCRA Facility Investi-gation of SWMUs RSA-99, 117, 130 RSA, AL	Ebasco	Apr-93	99, 117, 130	Provides work procedures pertaining to facility investigations at RSA-99, 117, 130
84	7	Final - Field Sampling and Chemical Data Acquisition Plan & Soil Boring and Monitoring - Well Installation Plan - RCRA Facility Investi-gation of SWMU RSA-130 RSA, AL	Ebasco	Apr-93	130	Describes the measures to be taken to insure the quality of chemical analytical material acquired during sampling and remedial investigation activities at RSA-130
85	7	Final - Field Sampling and Chemical Data Acquisition Plan & Soil Boring and Monitoring - Well Installation Plan - RCRA Facility Investi-gation of SWMU RSA-117 RSA, AL	Ebasco	Apr-93	117	Describes the measures to be taken to insure the quality of chemical analytical material acquired during sampling and remedial investigation activities at RSA-117
86	7	Final - Field Sampling and Chemical Data Acquisition Plan & Soil Boring and Monitoring - Well Installation Plan - RCRA Facility Investi-gation of SWMU RSA-99 RSA, AL	Ebasco	Apr-93	99	Describes the measures to be taken to insure the quality of chemical analytical material acquired during sampling and remedial investigation activities at RSA-99
87	7	Final - Site Safety and Health Plan - RCRA Facility Investigation of SWMUs RSA-99, 117, 130 RSA, AL	Ebasco	Apr-93	99, 117, 130	Addresses the hazards associated with installatioin of test wells at RSA-99, 117, 130
88	7	Final - Phase II Adden-dum - RCRA Facility Investigation at Unit 1, Unit 2, & Selected Unit 3 Areas	Geraghty & Miller Inc.	Apr-93	10, 12, 13, 14, 131, 132, 133, 49, 48, 53, 60, 59, 54/55, 66, 68	Contains additional information concerning facility investigations at Units 1, 2, and 3
89	7	Draft Final - Corrective Action Management Plan for RSA, AL	Environmental Science & Engineering, Inc.	May-93		Outlines guidelines for RSA's corrective action management plan
90	7	RCRA Facility Investi-gation Addendums I and II to the RCRA Facility Investi-gation Work Plan for SWMUs RSA-58, 115, 116, 129, 140 (Target Seeker Area), and 142 (RSA-G)	Engineering Science Inc.	Add I - May 93 Add II - Jan 96	58, 115, 116, 129, 140, 142	Details updated work plans for remedial investigation activities at RSA-58, 115, 116, 129, 140, 142
91	7	Environmental Manage-ment Office - RCRA Facility Investigation for RSA, AL Vol. I & II	MICOM Environmental Management Office	May-93		Contains presentation material concerning RCRA facility investi-gations at RSA
92	7	60% Submittal - Con-struction Specifications- Interim Corrective Meas-ure Design at Unit 2 RSA, AL	Ebasco	May-93	12, 13, 14, 131, 132, 133	Describes design specifications to be implemented at Unit 2
93A	7	Draft Public Involvement and Response Plan for Unit 2	Ebasco	Apr-93	12, 13, 14, 131, 132, 133	Discusses PIRP for Unit 2
93	7	60% Submittal-System Design Analysis/Health & Safety Design Ana-lysis - Interim Corrective Measure Design at Unit 2 RSA, AL	Ebasco	May-93	12, 13, 14, 131, 132, 133	Addresses protective measures to be instituted for protection of on-site personnel, the public, and the environment from physical and chemical hazards at Unit 2
94	7	Final - Work Plan - Interim Corrective Meas-ure Design at RSA-G	Ebasco	Jun-93	142	Details the design of corrective measures to be implemented at RSA-G
95	7	Draft - Installation and Operation Plan - Interim Corrective Measure Design at Unit 2 RSA, AL	Ebasco	Jun-93	12, 13, 14, 131, 132, 133	Outlines the installation and operation procedures for remedial activities at Unit 2
96	7	Draft - Final Report - Rapid Response Contract Vol. I & II RSA, AL	OHM Remediation Services, Inc.	Jul-93		Contains a summary of the work performed and the supporting data generated during the remediation of drums containing potentially hazard-ous wastes at RSA
97	7	Revised Draft Final - Work Plan - Interim Cor-rective Design at Unit 1 RSA, AL	Ebasco	Aug-93	10	Details the work plan for remedial activities at Unit 1
98	7	Health and Safety Plan RSA Hsv., AL	Layne Safety & Environmental Health Services	Aug-93		Outlines health and safety procedures for RSA

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99	7	Storm Water Sampling Plan for NPDES Industrial Storm Water Discharge	USACE (Mobile)	Sep-93		Provides details for sampling of run-off water
100	7	Draft Final - Site Safety and Health Plan - Site Characterization Work Plan of SWMUs RSA-46, 47, 51, 56, 122, 139 at RSA, AL	Environmental Science & Engineering, Inc.	Sep-93	46, 47, 51, 56, 122, 139	Details the work plan for the investi-gation and characterization of the soil and/or groundwater at RSA-46, 47, 51, 56, 122, 139
101	7	Final - Installation Community Relations Pro-gram RSA, AL	Ebasco	Sep-93		Provides guidelines and procedures for community relations of RSA
102	7	Final-Public Involvement and Response Plan During Installation Res- toration Program Activ-ities at Unit 2 RSA, AL	Ebasco	Sep-93		Contains public comments and responses concerning the install-ation restoration program at Unit 2
103	7	Review of Past Environmental Studies RSA, AL	Advanced Sciences, Inc.	Nov-93		Provides a review of past environmental studies at RSA
103A	7	Non-Stockpile Chemical Materiel Program Survey and Analysis Report	Program Manager for Non-Stockpile Chemical Materiel	Nov-93		Identifies the locations, types, and quantities of non-stockpile chemical materiel.
104	7	Erosion and Deposition in Huntsville Spring Branch and Indian Creek	Woodward-Clyde Consultants	Dec-93		Contains updated information of erosion and deposition effects in HSB and Indian Creek
104A	7	Report of Preliminary Site Contamination Assessment Proposed Branch Exchange Service Station	LAW Engineering	Dec-93	143	Provides details from the investigation that first found petroleum product contamination at RSA-143.
105	7	Surface Water and Ground Water Monitor-ing Data	U.S. ARMY MICOM EMO	1993-1994		Provides detailed information of sampling results including lab data
106	7	Final Report - Development of Ground Water Monitoring Database - Phase I - Support Task RSA, AL	Vista Technologies	Feb-94		Provides detailed information of monitoring well locations, construct-ion specifications, and sampling results including lab data
107	8	Final - Site Characterization Work Plan of SWMUs 46, 47, 51, 56, 122,and 139	Environmental Science & Engineering, Inc.	Feb-94	46, 47, 51, 56, 122, 139	Provides work procedures for the investigation and characterization of SWMUs 46, 47, 51, 56, 122, and 139
108	8	Draft Site Safety and Health Plan Field Sampling Program at RSA-49 (Area F)	Ebasco	Mar-94	49	Details the procedures, minimum health and safety requirements, and emergency response for personnel involved in sampling activities at Unit 2
109	8	Revised Final Work Plan Interim Measure Corrective Design at RSA-49 (Area F)	Ebasco	Mar-94	49	Details the work procedures for the investigation and characterization of RSA-49
110	8	Draft Field Sampling and Analysis Plan Field Sampling Program at RSA-49 (Area F)	Ebasco	Mar-94	49	Describes the measures to be taken to insure the quality of chemical analytical material acquired during sampling of test well at RSA-49
111	8	Revised Final Work Plans Interim Correct- ive Measures Design at Unit 2 RSA, AL	Ebasco	Mar-94	12, 13, 14, 131, 132, 133	Details the procedure and design of corrective measures to be imple-mented at RSA-10
111A	8	Environmental Chemistry and Fate of Chemical Warfare Agents	Southwest Research, Inc.	Mar-94		Details storage, transportation, and destruction of chemical warfare materiel at various DoD installations
112	8	Draft Final Work Plan to Prepare BRA's at 16 SWMUs RSA, AL	Environmental Science & Engineering, Inc.	Apr-94		Describes work procedures for preparation of risk assessments at various RSA SWMUs
113	8	Best Management Prac-tice U.S. Army,MICOM EMO	U.S. ARMY MICOM EMO	Apr-94		Outlines environmental management guidelines and procedures for NPDES at RSA
114	8	Interim Remedial Design at RSA-56 and 139	USACE (Huntsville)	May-94	56, 139	Descibes procedures for implementation of interim remediation at RSA-56 and 139
115	8	Final Work Plan Interim Corrective Mea-sure Design at Unit 2 (RSA-13, 14, 132, 133) RSA, AL	Ebasco	May-94	13, 14, 132, 133	Details the work procedures for the investigation and characterization of various Unit 2 sites
116	8	Final - Field Sampling and Analysis Plan - Test Well Installation at Unit 2 (RSA-13, 14, 132, & 133) RSA, AL	Ebasco	May-94	13, 14, 132, 133	Describes the measures to be taken to insure the quality of chemical analytical material acquired during installation and sampling of test wells at Unit 2
117	8	Final - Site Safety & Health Plan - Field Sampling Program at Unit 2 RSA, AL	Ebasco	May-94	12, 13, 14, 131, 132, 133	Details the procedures, minimum health and safety requirements, and emergency response for personnel involved in sampling activities at Unit 2

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
118	8	Huntsville DDT Remedial Action - Huntsville Spring Branch, Indian Creek, Long-Term Monitoring Program Annual Report No. 6	Olin-Environmental Affairs Dept.	Jun-94		Annual report of results concerning the monitoring program of HSB and Indian Creek
119	8	Final - Characterization of Investigative Derived Wastes in Drums at Six RCRA Sites	Engineering Science Inc.	Aug-94		Details plans to identify potentially hazardous wastes at six RCRA sites
120	8	Final - Work Plan - Interim Corrective Measure Design at RSA-10 (Unit 1)	Enserch Environmental Corp.	Oct-94	10	Details the work plan procedures of corrective measures to be imple-mented at RSA-10
121	8	Final - Field Sampling and Analysis Plan - Test Well Installation at RSA-10 (Unit 1) RSA, AL	Enserch Environmental Corp.	Oct-94	10	Describes the measures to be taken to insure the quality of chemical analytical material acquired during sampling of test well at RSA-10
122	8	Final - Site Safety & Health Plan - Test Well Installation at RSA-10 (Unit 1) RSA, AL	Enserch Environmental Corp.	Oct-94	10	Addresses the hazards associated with installation of test wells at RSA-10
123	8	Revised Final - Work Plan - Interim Corrective Measure Design at RSA-142 (RSA-G)	Enserch	Oct-94	142	Provides additional details for the design of corrective measures to be implemented at RSA-142
124	8	Field Sampling and Ana-lysis Plan / Site Safety and Health Plan - Test Well Installation at RSA-142 (RSA-G)	Enserch	Oct-94	142	Describes the measures to be taken to insure the quality of chemical analytical material acquired during installation and sampling of test well at RSA-142
125	8	Draft Final - Work Plan for Evaluating and Disposing of Investi-gative Derived Wastes	Vista Technologies	Oct-94		Provides work procedures for remediation of investigative derived wastes
125A	8	MSFC Sites Proposed for No Further Action	CH2M HILL	Oct-94	MSFC-1, 6, 7, 11, 12, 13, 17, 18, 22, 23, 24, 25, 26, 28, 30, 31, 32, 37, 39, 40, 51, 54, 56, 57, 62, 69, 70, 71, 72, 73, 75, 79, 85, 86, B, C,	Presents the analysis and basis for no further actions at the selected MSFC sites.
126	8	Final - Work Plan - Field Sampling and Chemical Data Acquisition Plan - Phase I - Remedial Investigation of SWMUs RSA-126, 134	Ebasco	Nov-94	126, 134	Describes the measures to be taken to insure the quality of chemical analytical material acquired during sampling and remedial investigation activities at RSA-126, 134
127	8	Final - Site Safety and Health Plan - Phase I - Remedial Investigation of SWMUs RSA-126, 134	Ebasco	Nov-94	126, 134	Addresses the hazards associated with remedial activities at RSA-126, 134
128	8	Final - Public Involve-ment and Response Plan during Installation Restoration Program Activities at RSA-49	Foster Wheeler Corp.	Nov-94	49	Contains public comments and responses concerning the install-ation restoration program at RSA-49
129	8	Final-Public Involvement and Response Plan During Installation Res-toration Program Activ-ities at RSA-10 Unit 1 RSA, AL	Foster Wheeler Corp.	Nov-94	10	Contains public comments and responses concerning the install-ation restoration program at RSA-10
129A	8	Final Report Magetometer Survey & Intrusive Operations - NASA Site	El Dorado Engineering, Inc.	Nov-94	141	Describes geophysical and intrusive work done at RSA-141 in preparation of construction work. Construction work halted at this location
130	8	95% Submittal - Con-struction Specifications- Interim Corrective Mea-sure Design at RSA-49 RSA, AL	Ebasco	Dec-94	49	Describes corrective measures to be implemented at RSA-49
131A	9	Final Environmental Assessment for Redstone Arsenal	Foster Wheeler Corp.	Dec-94		Environmental Assessment describing the Master Plan Implementation
131	8	95% Submittal - System Design Analysis - Interim Corrective Mea-sure Design at RSA-49 RSA, AL	Ebasco	Dec-94	49	Outlines the techniques and methods for corrective measures at RSA-49

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132	9	95% Submittal - Install-ation and Maintenance Plan/Health and Safety Design Analysis - Inter-im Corrective Measure Design at RSA-49 RSA, AL	Ebasco	Dec-94	49	Contains general guidelines per-taining to compliance of interim corrective measures and addresses protective measures to be instituted for protection of on-site personnel, the public, and the environment from physical and chemical hazards at RSA-49
133	9	Revised Draft Final - Environmental Assess-ment on Unit 2 (Open Burn / Open Demolition Area) RSA, AL	Gulf Engineers & Consultants, Inc.	Dec-94	12, 13, 14, 131, 132, 133	Identifies and evaluates the environ-mental aspects of implementing in-terim corrective measures at Unit 2
134	9	Technical Review Com-mittee Meeting #2	RSA	Dec-94		Outlines corrective measures and procedures for RSA
135	9	95% Submittal - Construction Specifica-tions - Interim Correct-ive Measure Design at RSA-13 RSA, AL	Foster Wheeler Corp.	Dec-94	13	Describes construction specifications to be implemented at RSA-13
136	9	95% Submittal - Health and Safety Design Analysis - Interim Corrective Measure Design at RSA-13 RSA, AL	Foster Wheeler Corp.	Dec-94	13	Describes the health and safety measures to be implemented at RSA-13
137	9	95% Submittal - Install-ation and Operation Plan - Interim Corrective Measure Design at RSA-13 RSA, AL	Foster Wheeler Corp.	Dec-94	13	Describes installation procedures to be implemented at RSA-13
138	9	95% Submittal- System Design Analysis-Interim Corrective Measure Design at RSA-13 RSA, AL	Foster Wheeler Corp.	Dec-94	13	Describes design of corrective measures to be implemented at RSA-13
139	9	Final - Site Safety and Health Plan - Test Well Installation at RSA-142 (RSA-G)	Foster Wheeler	Jan-95	142	Addresses the hazards associated with installation a of test well at RSA-142
139A	9	U.S. Army Chemical Demilitarization and Remediation Activity - Non-Stockpile Chemical Materiel Program Implementation Plan	Department of the Army - Office of the Project Manager for Chemical Demilitarization and Installation Restoration	Jan-95		Contains guidelines for implementation of non-stockpile chemical materiel program
140	9	Installation Action Plan	MICOM Environmental Management Office	Feb-95		Descrbes the plans for installation restoration at RSA
141	9	Installation Restoration Program Management Plan	MICOM Environmental Management Office	Feb-95		Descrbes the procedures for installation restoration at RSA
142	9	Final - RCRA Facility Investigation Report for SWMUs RSA-58, 115, 116, 129, 140, 142 Vol. I & II	Engineering Science Inc.	Feb-95	58, 115, 116, 129, 140, 142	Describes the results of all activities associated with the investigation of soil and groundwater at RSA-58, 115, 116, 129, 140, 142
143	9	Invitation for Bid - Water Treatment System, RSA-13 (Open Burn / Open Detonation Area)	USACE (Savannah)	Feb-95	13	Contains guidelines for the bidding process and specifications for the construction of interim corrective measures at RSA13
144	9	Construction of Multilayer Clay Cap at Area F, RSA-49 (Closed Arsenic Ponds Area)	USACE (Savannah)	Feb-95	49	Contains guidelines for the bidding process and specifications for the construction of interim corrective measures at RSA-49
145	9	Site Management Plan	CH2M Hill, Inc.	Mar-95		Outlines the strategy for achieving the objectives of a CERCLA investi-gation and remediation program
146	9	Final -Technical Report - Test Well Installation at RSA-13 (Unit 2) RSA, AL	Enserch Environmental Corp.	Mar-95	13	Outlines the design and installation procedure for a groundwater moni-toring at RSA-13
147	9	Final - Workplan "Evaluating and Disposing of Investigative Derived Wastes"	Vista Technologies	Mar-95	all	Describes the workplan for removing IDW generated by Foster Wheeler investigation activities.
147A	10	Confirmatory Sampling Report - MSFC	CH2M HILL	Mar-95	MSFC-4, 5, 8, 9, 10, 36, 42, 61, 63, 64, 66, 67, 78, 83	Presents confirmatory data for placing these MSFC in a NFA catagory
148	10	Final - RCRA Facility Investigation Report - RCRA Facility Investi-gation of SWMUs RSA-99, 117, 130 Vol. I & II, RSA, AL	Ebasco	Apr-95	99, 117, 130	Desribes the results of all activities associated with the investigation and remediation of RSA-99, 117, 130

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149	10	Replaced with Document 165				
150	10	Final Report - Finding of No Significant Impact and Environmental Assessment for Interim Remedial Action at RSA-13(Open Burn/ Open Detonantion Area)	USACE (Savannah)	Apr-95	13	Describes the proposed ground-water recovery and treatment from extraction wells at RSA-13
151	10	Final Report - Finding of No Significant Impact and Environmental Assessment for Interim Remedial Action at RSA-49(Closed Arsenic Impoundments)	USACE (Savannah)	Apr-95	49	Describes the proposed ground-water recovery and treatment from extraction wells at RSA-49
152	10	Decision Document for Interim Remedial Action at RSA-13, Open Burn / Open Detonation Area, RSA	USACE (Savannah)	Apr-95	13	Describes the selected Interim Remedial Action at RSA-13
153	10	Decision Document for Interim Remedial Action at RSA-49, Closed Arsenic Ponds Area, RSA	USACE (Savannah)	Apr-95	49	Describes the selected Interim Remedial Action at RSA-49
154	10	Final Report - Site Inspection Work Plan - RSA-84, 87, 88, 89, 104, 109, 110, 118,128, 141 ,142, 143, A, B, C, D, E, F	RUST	May-95	84, 87, 88, 89, 104, 109, 110, 118, 128, 141, 142, 143, A, B, C, D, E, F	Describes work plan procedures for site inspection of given SWMUs
155	10	Final - Site Safety and Health Plan - TEU/EOD Plan RSA-5, 32, 50, 52, 57, 61, 62, 63, 65, 67, 108, 112, 113, 114	RUST	Jun-95	5, 32, 50, 52, 57, 61, 62, 63, 65, 67, 108, 112, 113, 114	Describes the health and safety measures to be implemented at RSA-5, 32, 50, 52, 57, 61, 62, 63, 65, 67, 108, 112, 113, 114
156	10	Final - Phase I Remedial Investigation Work Plan RSA-5, 32, 50, 52, 57, 61, 62, 63, 65, 67, 108, 112, 113, 114	RUST	Jun-95	5, 32, 50, 52, 57, 61, 62, 63, 65, 67, 108, 112, 113, 114	Describes the plans for the remedial investigation of RSA-5, 32, 50, 52, 57, 61, 62, 63, 65, 67, 108, 112, 113, 114
157	10	Redstone Arsenal Investigative Derived Wastes Disposal Activity Report	Environmental Science & Engineering, Inc.	Jun-95		Provides procedures for disposal of investigative derived wastes
158	10	Draft Final - Baseline Risk Assessment for RSA-48, 49, 54/55, 59	Environmental Science & Engineering, Inc.	Jul-95	48, 49, 54/55, 59	Assesses the potential health risks to humans and ecological receptors that may be posed by RSA-48, 49, 54/55, 59
159	10	Decision Document for Removal Action at RSA-130	AMCOM	Jun-95	130	Decision Document for the removal of the septic tank and associated piping at RSA-130
160	10	Final Submittal - Interim Corrective Measures Design at RSA-142 - Installation and Operation Plan	Foster Wheeler Corp.	Jun-95	142	Describes installation procedures to be implemented at RSA-13
160A	10	Natural Resources Management Plan for Redstone Arsenal, Parts I, II, III, IV, V, VI	U.S. ARMY MICOM	Jul-95	all	Describes the Natural Resources Mgmt Plan for RSA
161	10	Health and Safety Design Analysis for Interim Corrective Measures at RSA-142	Foster Wheeler Corp.	Aug-95	142	Provides the health and safety information for the Interim Corrective Measures design for RSA-142
162	10	Construction of Multi-layer Clay Cap at Area F, RSA-49 - Field Sampling and Analysis Plan	Vector Enterprises, Inc.	Aug-95	49	Contains the field sampling and analysis plan for clay cap construction at RSA-49 (Area F)
162A	10	Interim Holding Facility Plan, RSA - Non-Stockpile Chemical Materiel	Program Manager for Chemical Demilitarization	Aug-95		Presents the interim holding facility plan for non-stockpile chemical materiel located on RSA.
162B	10	Non-Stockpile Chemical Materiel Program Implementation Plan	Program Manager for Chemical Demilitarization	Aug-95		Explain the overall strategy. plan and time frame for disposal strategies of non-stockpile chemical materiel.
163	10	Final Submittal - Interim Corrective Measures Design at RSA-142 - Construction Specifications	Foster Wheeler Corp.	Oct-95	142	Describes construction specifications to be implemented at RSA-13
164	10	Final Design Analysis Report, Interim Corrective Measure Design at RSA-142	Foster Wheeler Corp.	Oct-95	142	Provides a comprehensive summary of the Interim Corrective Measure design effort at RSA-142
164A	10	Natural Heritage Inventory of RSA	Nature Conservancy, Alabama Natural Heritage Program	Oct-95	All	Lists the endangered, threatened, candidate and state-listed species at RSA.
165A	10	Technical Report for Test Well Installation at RSA-10	Foster Wheeler Corp.	Nov-95	10	Describes activities involved with installing test well at RSA-10
165	10	Final Supplemental RI/BRA Work Plan for RSA 99, 117, and 130	RUST	Nov-95	99, 117, 130	Describes the work plan for further investigation and risk assessment for RSA-99, 117, 130

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166A	10	Field Program Technical Report Test Well Installation at RSA-142	Foster Wheeler Corp.	Dec-95	142	Describes activities involved with test well installation at RSA-142
166	10	Disposal Report - Evaluation and Disposal of Investigative Derived Wastes from sites RSA-58, 115, 116, 129, and 142	Vista Technologies	Dec-95	58, 115, 116, 129,142	Describes the evaluation and disposal activities associated with the IDW for RSA-58, 115, 116, 129, and 142
167A	10	Finding of No Significant Impact/Environmental Assessment for Interim Remedial Action at RSA-142	USACE, Savannah District	Dec-95	142	Presents the NEPA documentation for the IRA at RSA-142
167	10	Unit 4 Ground-Water Sampling and Analysis Task for RSA	Vista Technologies	Dec-95	Perimeter Monitoring	Describes the sampling and analysis of samples collected from the Unit 4 perimeter wells at RSA
168A	11	Internal-Draft BRA for RSA-10, 53, and 60	ESE	Dec-95	10, 53, 60	Internal-Draft BRA for RSA-10, 53, and 60. Contract was canceled and a new BRA is being prepared.
168	11	Final Site Characterization Report for RSA-46, 47, 51, 56, 122, and 139 (Group X1)	ESE	Jan-96	46,47,51,56, 122,139	Describes the site characterization at sites RSA-46,47,51,56,122, and 139
169	11	Quality Control Summary Report for RSA-99, RSA-117, and RSA-130	Rust E&I	Feb-96	99, 117, 130	Description of procedures followed during sample collection, packaging, transportation, and decontamination activities to ensure high quality data
170A	11	Redstone Arsenal Extended Pump Test at RSA-10	ICF Kaiser	Feb-96	10	Describes the extended pump testing at the landfill, RSA-10
170	11	Report of Findings in Support of the Proposed Plan for Mitigation of RSA-10	Foster Wheeler	Mar-96	10	Summarizes work on RSA-10 in support of the Proposed Plan for Mitigation
171	11	Replaced with Document 182				
172	11	Final - Work Plan, Field Sampling & Chemical Data Acquisition Plan, and Site Safety & Health Plan - Phase I - Remedial Investigation of SWMU's at RSA-126 and 134	Foster Wheeler	Mar-96	126, 134	Describes the work plans, the measures to be taken to insure the quality of chemical analytical material acquired during sampling and safety procedures to be implemented during remedial investigation activities at RSA-126, 134
173A	11	Site Safety & Health Plan for Test Well Installation at RSA-10	ICF Kaiser	Apr-96	10	Amendment 2 for the Remedial Investigation/Feasibility Study at RSA-10
173	11	Final Phase I Environmental Baseline Study Redstone Rocket Engine Assembly Facility South Plant	Brown & Root Environmental	May-96		Describes the environmental baseline survey performed at South Plant in preparation for Thiokol vacating the property and installing a new tenant
174	11	Final Comprehensive Work Plan Addendum for RSA-8,9,11 (Group C1), 45 (Group L8), and 82 (Group L14)	SAIC	May-96	8, 9, 11, 45, 82	Defines SI efforts to be performed at RSA-8, 9, 11, 45, and 82
174A	11	Installation Action Plan for Redstone Arsenal	MICOM Environmental Office	May-96	all	Describes plan of action for dealing with identified CERCLA sites
175	11	Final Site Inspection Work Plan for RSA-94, 95, 96, 97, and 98	Rust E&I	Feb 96, approved Jun 96	94, 95, 96, 97, 98	Describes Site Inspection efforts at RSA-94,95,96,97, and 98
175A	11	Draft Final General RI/FS Work Plan for Unit 2 and Group X4B Sites	Parsons	Sep-96	13, 14, 53, 60, 66, 68, 132, 133	Contains general information regarding RI/FS work at RSA-13, 14, 53, 60, 66, 68, 132, and 133
175B	11	Draft Final Unit 2 Site Specific Work Plan for RSA-13, 14, 132, and 133	Parsons	Sep-96	13, 14, 132, 133	Describes specific work to be performed at RSA-13, 14, 132, and 133
175C	11	Draft Final Group X4B(u) Site Specific Work Plan for RSA-66 and 68	Parsons	Sep-96	66, 68	Describes specific work to be performed at RSA-66 and 68
175D	11	Draft Final Group X4B Site Specific Work Plan for RSA-53 and 60	Parsons	Sep-96	53, 60	Describes specific work to be performed at RSA-53 and 60
176	11	Draft Redstone Arsenal RSA-10 Groundwater Investigation Summary Report	ICF Kaiser	Oct-96	10	Describes the groundwater investigation performed by ICF Kaiser at RSA-10
177	11	Surface and Groundwater Monitoring - 1995	Northrup Grumman	Oct-96		Surface and groundwater monitoring data collected on RSA and analyzed by Northrup Grumman in 1995
178	11	Hydrogeologic Evaluation of Landfill Site RSA-010	Geological Survey of Alabama	Oct-96	10	Describes hydrogeologic conditions of the landfill, RSA-10, as evaluated by a study performed by the Geologic Survey of Alabama

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179	11	Draft Work Plan Phase II Environmental Baseline Study Redstone Arsenal Rocket Engine Facility South Plant	CH2M Hill	Oct-96		Describes field work to be done for the Phase II EBS in RARE Facility South Plant
179A	11	Draft-Final Remedial Investigation for RSA-126 and 134	Foster Wheeler	Oct-96	126, 134	This report was never approved and the information was provided to SAIC to prepare another RI Report.
180	11	Final Waste Disposition Report for Site Inspections at RSA-8, 9, 11 (Group C1), RSA-45 (Group L8), and RSA-82 (Group L14)	SAIC	Nov-96	8, 9, 11, 45, 82	Describes removal of IDW for the SI work at these sites.
181	11	Phase I Environmental Baseline Study - Redstone Arsenal Rocket Engine Facility North Plant	CRA	Nov-96		Describes historical search and chemical use at the buildings in the RARE Facility North Plant.
182	11	Final Report Development of Ground-Water Monitoring Database	DEMP	Nov-96		Describes database established for consolidation of installation-wide groundwater monitoring well data.
183	12	Draft Final Work Plan to Conduct Baseline Risk Assessment and Feasibility Study at RSA-58, 115, 116, 129, and 140	Parsons ES	Jan-97	58, 115, 116, 129, 140	Describes work to be done for the BRA/FS for RSA-58, 115, 116, 129, and 140
183A	12	Environmental Assessment of the Natural Resources Management Plan	U.S. Army MICOM	Jan-97	all	NEPA documentation for the Natural Resources Mgmt Plan
184	12	Draft Final Feasibility Study for RSA-49 and RSA-55/54	ESE	Feb-97	49, 55/54	Presents the feasibility study for RSA-49 and RSA-55/54
185	12	U.S. E.P.A. Interchange File Format (IFF) Data for Solid Waste Management Units RSA-46, 47, 51, 56, 122, and 139	ESE	Feb-97	46, 47, 51, 56, 122, 139	Presents data for RSA-46, 47, 51, 56, 122, and 139 in IFF format
185A	12	Draft-Final Report of MSFC Background Sampling	CH2M Hill	Feb-97	MSFC	Describes sampling and analysis efforts to establish multimedia background values.
186	12	Installation Action Plan for Redstone Arsenal	MICOM	Mar-97	all	Describes the plan of action for the Defense Environmental Restoration Program for RSA
187	12	Final Supplemental RCRA Facility Investigation Report for RSA-115	Parsons	Mar-97	115	Describes investigation work performed at RSA-115
188	12	Investigation Derived Waste Disposal Report	IT Corp	Jun-97	46, 47, 51, 56/122/139, 49, 14, 142, Perimeter Wells	Describes the disposal of IDW associated with field investigations at RSA-46, 47, 51, 56/122/139, 49, 14, 142, and Perimeter Wells
189	12	RARE North Plant Phase II EBS Sampling and Analysis Plan and Site-Specific Safety and Health Plan	CH2M Hill	Jun-97	RARE North Plant	Describes field work to be done for the Phase II EBS in RARE Facility North Plant
190	12	Draft Final Installation Wide Work Plan	IT Corp	Jun-97	all	Provides general information for IRP work at RSA
191	12	Installation-Wide Sampling and Analysis Plan	IT Corp	Jun-97	all	Describes sampling and analysis efforts that will be used for all IRP field work
192	12	Site Specific Field Sampling Plan Attachments	IT Corp	Jun-97	46, 47, 51/51S, 56/122/139, 49, 14, 142	Describes field work for sites 46, 47, 51/51S, 56/122/139, 49, 14, and 142
193	12	Site Specific Safety and Health Plan Attachments	IT Corp	Jun-97	14, 142, 51/51S, 56/122/139, 49	Describes safety and health procedures for IR work associated with RSA-14, 142, 51/51S, 56/122/139, and 49
194	12	Final Site Inspection Work Plan for RSA-64, 69, and 70, MSFC-2, 3, 27, 34, 53, 55, 60, 65, 74, 77, 82, and D	Rust E&I	Jul-97	64, 69, 70, MSFC-2, 3, 27, 34, 53, 55, 60, 65, 74, 77, 82, D	Describes field work for sites RSA-64, 69, and 70, MSFC-2, 3, 27, 34, 53, 55, 60, 65, 74, 77, 82, and D
195	12	Draft Non-Stockpile Chemical Materiel Project Implementation Plan	U.S. Army Project Manager for Non-Stockpile Chemical Materiel	Jul-97		Describes acceptable methodologies and a coordinated schedule to support the Chemical Weapons Convention.
196	12	Draft-Final Supplemental Remedial Investigation/Baseline Risk Assessment Report for RSA-99, 117, and 130	Rust E&I	Aug-97	99, 117, 130	Presents the results of the Supplemental RI/BRA that was prepared for RSA-99, 117, and 130
197	12	Draft-Final Report of Findings Phase II Environmental Baseline Survey for the Redstone Arsenal Rocket Engine Facility, South Plant	CH2M HILL	Aug-97		Describes environmental baseline survey sampling results at the South Plant of the RARE Facility

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198	12	Draft-Final Site-Specific Safety and Health Plan Attachment for the Time-Critical Removal Action at RSA-130	IT Corp	Aug-97	130	Presents safety and health plans for the removal action of the septic tank at RSA-130
199	12	Draft-Final Work Plan for the Time-Critical Removal Action at RSA-130, Operable Unit 9	IT Corp	Aug-97	130	Describes the removal action of the septic tank and associated piping and impacted soil at RSA-130.
200	12	Draft-Final Decision Document for No Further Action at RSA-108 Rocket Impact Area Operable Unit 16	IT Corp	Aug-97	108	Closes out IRP activities at RSA-108
201	12	Draft-Final Decision Document for No Further Action at RSA-B Abandoned Army Propellant Manufacturing Building Operable Unit 11	IT Corp	Aug-97	B	Closes out IRP activities at RSA-B
202	12	Draft-Final Decision Document for No Further Action at RSA-84 Temporary Storage Area Operable Unit 10	IT Corp	Aug-97	84	Closes out IRP activities at RSA-84
202A	12	Draft Baseline Water Quality Monitoring Program Report, First Quarterly Event	IT Corp	Aug-97	Perimeter Monitoring	Contains data from the first quarterly sampling of perimeter wells in FY97
203	13	Draft-Final Screening Remedial Investigation Report for RSA-5, 32, 84, 87, 88, 89, 104, 108, 118, 143, A, B, C, D, E, and F	Rust E&I	Sep-97	5, 32, 84, 87, 88, 89, 104, 108, 118, 143, A, B, C, D, E, F	Descibes results of the screening remedial investigation at sites RSA-5, 32, 84, 87, 88, 89, 104, 108, 118, 143, A, B, C, D, E, and F
204	13	Draft Final Field Sampling and Analysis Plan for OU1 (RSA 143)	ICF Kaiser	Sep-97	RSA-143	Describes field work planned for RSA-143
205	13	Draft Final Field Sampling and Analysis Plan for OU-6a (MSFC-74)	ICF Kaiser	Sep-97	MSFC-74	Describes field work planned for MSFC-74
206	13	Final Proposed Plan for the Interim Record of Decision at Operable Unit 6 for RSA-55/54 Closed Sanitary and Industrial Landfill	IT Corp	Oct-97	55/54	Describes the plan for prepartion of and IROD at RSA-55/54 at OU 6
207	13	Final Proposed Plan for the Interim Record of Decision at Operable Unit 5 for RSA-49 Former Arsenic Ponds North	IT Corp	Oct-97	49	Describes the plan for prepartion of an IROD at RSA-49 at OU 5
208	13	Final Site-Specific Work Plan and Site-Specific Field Sampling Plan for RSA Screen Remedial Investigation at Operable Unit 2, Sites RSA-D, 5, 8, and 45	SAIC	Oct-97	D, 5, 8, 45	Describes screening remedial investigative work to be done at RSA-D, 5, 8, and 45 at OU 2
209	13	Site Safety & Health Plan for RSA Site Inspection Project at OU 2 (RSA-D, 5, 8, and 45)	SAIC	Oct-97	D, 5, 8, 45	Describes safety and health procedures for IR work associated with screening remedial investigation ad RSA-D, 5, 8, and 45 at OU 2
210	13	Final Proposed Plan for the Interim Record of Decision at Operable Unit 6A for RSA-10	ICF Kaiser	Oct-97	10	Describes the plan for the preparation of an IROD at RSA-10 at OU-6A
211	13	Draft-Final Feasibility Study for RSA-48 and RSA-59	ESE	Oct-97	48, 59	Presents the feasibility study for RSA-48 and 59
212	13	Non-Stockpile Chemical Warfare Materiel Programmatic Environmnental Impact Statement	DA Program Manager for Chemical Demilitarization	Oct-97		Programmatic Environmental Impact Statement for the selection of one or more strategies for the treatment of non-stockpile chemical warfare materiel utilizing transportable chemical treatment systems
212A	13	Control Monuments	PDR	Dec-97	Installation Wide	Descriptions of monuments established from global positioning system observations utilizing the National Geodetic Survey 1st order Horizontal and Vertical Control
213	13	Final Bedrock Monitoring Well Installation Work Plan	Rust E&I	Jan-98	142	Describes field efforts to install five bedrock monitoring wells to determine extent of contamination associated with the TCE plume at RSA-142
214	13	Treatability Studies Report RSA-142 Degreaser at Building 7664	IT Corp	Jan-98	142	Describes results of a pilot effort to use a Soil Vapor Extraction system at RSA-142.

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215	13	Treatability Studies Report RSA-14 Contaminated Waste Trenches	IT Corp	Jan-98	14	Describes results of a pilot effort to use a Soil Vapor Extraction system at RSA-14.
216	13	Initial Long Term Monitoring Report Closed Arsenic Waste Lagoons, Area F, RSA-49	IT Corp	Jan-98	49	Presents the first quarterly environmental monitoring data at RSA-49.
217	13	Draft-Final Phase I Remedial Investigation Report for RSA-50, 52, 57, 61, 62, 63, 65, 67, 109, 110, 112, 113, 114, and 128	Rust E&I	Feb-98	50, 52, 57, 61, 62, 63, 65, 67, 109, 110, 112, 113, 114, 128	Presents investigation results from the Phase I RI field effort at RSA-50, 52, 57, 61, 62, 63, 65, 67, 109, 110, 112, 113, 114, and 128
217A	13	Operation and Maintenance Manual for the Groundwater Recovery and Treatment System Interim Corrective Measure at RSA-13 (Vols I and II)	WATEC	Feb-98	13	Contains operation and maintenance information for the groundwater pump and treat interim remedial action at RSA-13
218	13	Installation Action Plan for Redstone Arsenal, Alabama	U.S. Army Aviation and Missile Command	Mar-98	all	Presents the current plan for completing the Installation Restoration Program activities at Redstone Arsenal.
219	13	Draft-Final Site Screening Remedial Investigation Report for RSA-94, 95, 96, 97, and 98	Rust E&I	Mar-98	94, 95, 96,97, 98	Presents investigation results from the Site Screening Remedial field effort at RSA-94, 95, 96, 97, and 98
220	13	Bedrock Monitoring Well Installation Report	Rust E&I	Mar-98	OU-10	Presents information pertaining to the installation of 5 new perimeter wells around OU-10
221	13	Installation-Wide Background Soil Study Report	IT Corp	Apr-98	all	Presents background sampling methods and value determination methodology for soils at RSA
222	13	Draft-Final Report of Findings Phase II Environmental Baseline Survey for the Redstone Arsenal Rocket Engine Facility, North Plant	CH2M Hill	Apr-98	OU-10	Describes environmental baseline survey sampling results at the North Plant of the RARE Facility
222A	14	Architectural Assessment of the World War II Military and Civilian Works, U.S. Army Aviation and Missile Command	Panamerican Consultants, Inc.	Apr-98		Details results of reconnaissance-level survey of WW II structures on RSA to make recommendations as to their status for the National Register of Historic Places
222B	14	U.S. Army Aviation and Missile Command Hazardous Waste Facility Permit	ADEM	Apr-98		Updated RCRA Part B Permit for hazardous waste storage at RSA
223	14	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 6	IT Corp	May-98	OU-6	Describes field work to be performed at OU-6
224	14	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 7	IT Corp	May-98	OU-7	Describes field work to be performed at OU-7
225	14	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 18	IT Corp	May-98	OU-18	Describes field work to be performed at OU-18
226	14	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 8	IT Corp	May-98	OU-8	Describes field work to be performed at OU-8
227	14	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 10	IT Corp	May-98	OU-10	Describes field work to be performed at OU-10
228	14	Draft-Final Proposed Plan for the Interim Record of Decision at RSA-99, Former Plating Shop, Building 7614 in Operable Unit 10	IT Corp	Jun-98	99	Presents the proposed plan for no further action at RSA-99 in OU-10
229	14	Draft-Final Closure Report Time-Critical Removal Action at RSA-130 Operable Unit 9	IT Corp	Jun-98	130	Describes activities involved with the removal action of the septic tank, piping, and impacted soils at RSA-130
230	14	Final Modified Phase I Environmental Baseline Study for the Proposed FBI Training Center	PDR	Jun-98		Presents environmental baseline study results for the FBI training facility location on Redstone Arsenal
231	14	Draft-Final Remedial Investigation Report for Operable Unit 3	IT Corp	Jul-98	OU-3	Presents RI results for OU-3 (RSA-47)
232	14	Draft-Final Field Sampling and Analysis Plan for RSA-143 (OU-1) Secondary Investigation Phase II	ICF Kaiser	Aug-98	OU-1	Describes the field sampling planned for RSA-143 in OU-1.

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
233	14	Final Site Safety and Health Plan Amendment 1 to the Final Site Safety and Health Plan for Site MSFC-74 for RSA-10 (OU-6A) Long Term Groundwater Monitoring Program	ICF Kaiser	Sep-98	OU-6A	Presents the site safety and health plan for the long term monitoring program at RSA-10 in OU-6A.
234	14	Draft-Final Baseline Risk Assessment Report for OU-13, OU-12 (RSA-140), and OU-7 (RSA-129 and RSA-58), Vols 1-3	Parsons	Sep-98	OU-13, OU-12 (RSA-140), OU-7 (RSA-129 and RSA-58)	Presents the baseline risk assessment results for OU-13, OU-12 (RSA-140), and OU-7 (RSA-129 and RSA-58).
235 (Replaced with Doc 241)	14	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 5	IT Corp	Sep-98	OU-5	Describes the field sampling planned for the sites in OU-5.
236	14	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 15	IT Corp	Oct-98	OU-15	Describes the field sampling planned for the sites in OU-15.
237	15	Draft-Final Site Screening Remedial Investigation Report for RSA-64, 69, and 70, MSFC-2, 3, 27, 34, 53, 55, 60, 65, 74, 77, and 82	Rust E&I	Oct-98	RSA-64, 69, 70, MSFC-2, 3, 27, 34, 53, 55, 60, 65, 74, 77, and 82	Presents the site screening remedial investigation results for RSA-64, 69, and 70, MSFC-2, 3, 27, 34, 53, 55, 60, 65, 74, 77, and 82.
238	15	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 11	IT Corp	Oct-98	OU-11	Describes the field activities scheduled for Operable Unit 11.
239	15	Draft-Final Installation-Wide Safety and Health Plan for Site Investigation Activities	IT Corp	Dec-98	all	Updates the installation-wide safety and health plan for site investigation acitivities on Redstone Arsenal.
240	15	Baseline Water Quality Monitoring Program Report Volume I: Groundwater and Volume II: Surface Water	IT Corp	Dec-98	all	Presents the results of the baseline water quality program for data collected over the past four quarters.
241	15	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 5	IT Corp	Dec-98	OU-5	Presents the field sampling plans for sites in Operable Unit 5.
241A	15	Draft-Final Remedial Investigation/Feasibility Report for RSA-10 (Operable Unit-6a)	ICF Kaiser	Feb-99	OU-6a	Presents the RI/FS work for RSA-10
242	15	Installation Action Plan for Redstone Arsenal	AMCOM	Mar-99	all	Presents the FY 99 Installation Action Plan for sites under the Installation Restoration Program
243	15	Draft-Final Site-Specific Field Sampling Plan Attachments for Operable Unit 17	IT Corp	Apr-99	OU-17	Presents site-specific field work plans for the sites in Operable Unit 17
244	15	Draft-Final Site-Specific Field Sampling Plan Attachments for OU-12	IT Corp	Apr-99	OU-12	Presents site-specific field work plans for the sites in Operable Unit 12
245	15	Final Proposed Plan for the Record of Decision for Operable Unit 3	IT Corp	Apr-99	OU-3	Presents the Army's plans for OU-3 under the Installation Restoration Program
246	15	Draft-Final Design Basis Report and Report of Construction Activities for the Interim Remedial Action (IRA) at RSA-14, Contaminated Waste Burn Trenches	IT Corp	Apr-99	OU-14	Presents the design and construction activities for the IRA (soil vapor extraction system) at RSA-14
247	15	Final Decision Document for a Interim Remedial Action Soil Vapor Extraction Treatment System for RSA-14 Inactive Unlined Earthen Open Burn Trenches in OU-14 Open Burn/Open Demolition Area	AMCOM	Apr-99	14	Decision Document for SVE at RSA-14 in OU-14
248	15	Draft-Final Supplemental Site Investigation at RSA-126 and RSA-134	SAIC	Apr-99	126, 134	Describes SI work performed at sites RSA-126 and RSA-134. This report will be followed up by low flow sampling and a new report by IT Corp
249	15	Final Decision Document for a Interim Remedial Action for Design and Construction of a Clay Cap for RSA-56 and RSA-139, Closed Arsenic Waste Lagoons	AMCOM	May-99	56, 139	Presents the decision for the IRA at RSA-56 and RSA-139.
250		Superceded by Document # 261				

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
251	15	Draft Feasibility Study for OU-7 (RSA-58)	Parsons	Jun-99	OU-7, 58	Presents Parsons efforts on the Feasibility Study for RSA-58. The FS is being completed by IT Corp.
252	15	Decision Document Interim Remedial Action Groundwater Pump and Treat System RSA-95 Former Degreaser Unit and TCE/TCA Solvent Still 2	AMCOM	Jun-99	OU-10, 95	Presents the decision for the IRA at RSA-95 (OU-10).
253	15	Decision Document Interim Remedial Action Groundwater Pump and Treat System RSA-96 Former Degreaser Unit and TCE/TCA Solvent Still 3	AMCOM	Jun-99	OU-10, 96	Presents the decision for the IRA at RSA-96 (OU-10).
254	15	Draft-Final Summary Baseline Human Health Risk Assessment RSA-50 (Operable Unit 17)	IT Corp	Jun-99	OU-17, 50	Presents the human health risk assessment work for RSA-50 (OU-17)
255	15	Results of Well Performance and Pilot Groundwater Recovery Testing, RSA-95 and RSA-96, Operable Unit 10	IT Corp	Jun-99	OU-10, 95, 96	Presents well performance data from the pump testing for the design of the IRA at RSA-95 and 96
255A	15	Decision Document Fencing and Signs for OU-8 (RSA-52, 61, and 62) The Inactive Munitions Demilitarization & Chemical Disposal Area	AMCOM	Jun-99	OU-8	Presents the decision to install fencing and signs around the inactive munitions demilitarization and chemical disposal areas of OU-8
256	15	Technical Memorandum for Geophysical Surveys and Groundwater Extraction Well Installation at Operable Unit 14	IT Corp	Jul-99	OU-14	Presents the technical information regarding the geophysical work and extraction well installation at OU-14
257	15	Decision Document For a Interim Remedial Action Fencing and Signage Installation for RSA-112, 113, and 128	AMCOM	Jul-99	OU-7, 112, 113, 128	Presents the decision to install fencing and signs around the inactive munitions demilitarization and chemical disposal areas of OU-7
258	15	Decision Document for No Further Action at MSFC-60 Drainage System for the Historic Redstone Test Site in OU-18	IT Corp	Aug-99	OU-18, MSFC-60	Presents the decision to perform no further action at MSFC-60 in OU-18
259	15	Final Evaluation of Groundwater Treatment Alternatives for RSA-95 and RSA-96	IT Corp	Aug-99	OU-10, 95, 96	Presents alternatives and treatment method selected for the interim remedial action for RSA-95 and 96
260	15	Draft-Final Summary Baseline Human Health Risk Assessment RSA-67 (Operable Unit 15)	IT Corp	Aug-99	OU-15, 67	Presents the human health risk assessment work for RSA-67 (OU-15)
261	16	Final Record of Decision for RSA-10 (Operable Unit 6A)	ICF Kaiser	Aug-99	OU-6A, 10	Presents the final remedy selected for RSA-10 in Operable Unit 6A
261A	16	Draft-Final Focused Feasibility Study for OU-13 (RSA-115/116)	Parsons	Aug-99	OU-13	Presents the focused feasibility study information for OU-13
261B	16	Decision Documents for Institutional Controls Using Fence and Signage for Selected Sites Within OU-2, OU-6, and OU-15	AMCOM	Aug-99	OU-2 (48), OU-6 (53, 54, 55, 56, 59, 60), OU-15 (65, 66, 67, 68, 69, 70, 110)	Presents decision for fence and signs at RSA-48 (OU-2), RSA-53, 54, 55, 56, 59, and 60 (OU-6), and RSA-65, 66, 67, 68, 69, 70, 110 (OU-15).
262	16	Final Record of Decision for Operable Unit 3	IT Corp	Sep-99	OU-3	Presents the final remedy selected for Operable Unit 3
262A	16	Redstone Arsenal Independent Technical Review (ITR) Final Recommendation Report	USAEC	Nov-99	OU14(RSA13), OU10 (RSA142), OU7 (RSA58), OU15 (RSA68), OU4 (RSA114)	Final Recommendations Report from the Independent Technical Review for RSA 13, 142, 58, 68, 114.
263	16	Final Army Decision Document for OU10, RSA-83	EMP-IR	Dec-99	OU-10, (RSA 83)	Army Decision Document for IRA soil hydrofracturing and in-situ GW treatment with Sodium permanganate or hydrogen peroxide for OU10, RSA-83
264	16	Final Army Decision Document for OU10, RSA-97	EMP-IR	Dec-99	OU-10, (RSA 97)	Army Decision Document for IRA soil hydrofracturing and in-situ GW treatment with Sodium permanganate or hydrogen peroxide for OU10, RSA-97

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
265	265	Draft Final Air Emissions Inventory and Compliance Demonstration for Operational and Proposed Soil and GW Remediation Systems for RSA 10, 13, 14, 142, 95, 96, 97 Revision 1	IT Corp	Feb-00 May-00	OU-6a, (RSA 10), OU14, (RSA 13, 14), OU10, (RSA 95, 96, 97, 142)	Draft Final Air Emissions Inventory and Compliance Demonstration for Operational and Proposed Soil and GW Remediation Systems for RSA 10, 13, 14, 142, 95, 96, 97
266	16	Draft Final Supplemental Remedial Investigation for OU 14	IT Corp	Mar-00	OU14, RSA 13, 14, 132, 133	Draft Final Supplemental RI for OU 14
267	16	Draft Final Site-Specific Field Sampling Plan Attachmentsfor RSA-122, RSA 126 and 139, OU6b	IT Corp	Feb-00	RSA-122, 126, 139	Draft Final FSP for OU6b, RSA 126 and 139
268	16	Installation Action Plan 2000	EPW-EQ-IR	Mar-00	Installation Wide	Presents the FY 00 Installation Action Plan for sites under the Installation Restoration Program
269	269	Draft Final Supplemental Remedial Investigation Report, RSA-46, OU 12, VOL I and II.	IT Corp	Apr-00	OU-12, RSA 46	Supplemental Remedial Investigation Report, Inactive Chemical Munition and Demilitarization Site RSA-46, OU 12, VOL I and II
270	270	Wheeler Permits for fence construction, quarterly monitoring and sampling	US Fish & Wildlife	Apr-00	Installation Wide	Wheeler Permits for fence construction, quarterly monitoring and sampling
271	271	Draft Final Site Investigation Report for OU-10, RSA-87, 88, 89	IT Corp	May-00	OU-10, RSA-87, 88, and 89	Site Investigation Report for RSA-87, 88 and 89
272	272	Draft Final Installation Wide Work Plan for Fencing and Trench Marker Installation for OU 4-8, 15 and 17	IT Corp	May-00	OU's 4-8, 15 and 17	Fencing and Trench Marker Work Plan
273	273	Draft Final Action Memorandum for Time Critical Removal Action at RSA-66, OU 15	IT Corp	Jun-00	OU-15, RSA-66	Action Memorandum for TCRA at RSA-66
274	274	Remedial Investigation and Baseline Risk Assessment for OU-2	SAIC	Jun-00	OU-2, RSA-D, 5, 8, 45, 48	RI and BRA for OU-2
275	275	Proposed Plan for RSA-50, OU-17	IT Corp	Jul-00	OU-17, RSA-50	The Proposed Plan for RSA-50 recommending NFA.
276	276	Environmental Restoration Summary for OU-14 through August 2000	IT Corp	Aug-00	OU14, RSA 13, 14, 132, 133	Environmental Restoration Summary for OU-14 through August 2000
277	277	Draft Final Site Investigation Report for OU-11, RSA-A, C, 82, 135H and 144 and the Supplemental Bedrock Groundwater Investigation	IT Corp	Sep-00	OU11, RSA-A, C, 82, 135H, 144	Draft Final SI for OU-11 There are 2 sets of CD's for this Document.
278	278	Draft Final Installation-Wide Ordnance and Explosives Management Plan for Support of Hazardous, Toxic and Radiological Waste Activities and Construction Activities	IT Corp	Nov-00	Installation Wide	Draft Final Mangement Plan Installation-Wide
279	279	Draft Final Design Basis Report for a TCRA, closed South Arsenic Waste Ponds (RSA-56) and Former Arsenic Trichloride Manufacturing and Disposal Area (RSA-139W)	IT Corp	Dec-00	RSA-56, RSA-139	Draft Final Design Basis Report
280	280	Draft Final Action Memorandum and Work Plan for a TCRA, Closed South Arsenic Waste Ponds (RSA-56) and Former Arsenic Trichloride Manufacturing and Disposal Area (RSA-139W)	IT Corp	Dec-00	RSA-56, RSA-139	Draft Final Action Memo and Work Plan
281	281	Draft Final Interim Remedial Action Operation and Maintenance Manual OU-10 Groundwater Recovery and Treatment System	IT Corp	Dec-00	OU-Wide	Draft Final Interim Remedial Action Operation and Maintenance Manual
282	282	Draft Final Remedial Investigation Report for RSA-53, OU-6A	USAEC	Jan-01	RSA-53	Draft Final RI Report
283	283	Draft Final Closure Report, Time Critical Removal Action at RSA-66, Inactive Ash Disposal Site, OU-15	IT Corp	Jan-01	RSA-66	Draft Final Closure Report for RSA-66
284	284	Final Background Distributions of Naturally Occurring Inorganic Constituents in Groundwater	IT Corp	Jan-01-Rev 0 Oct-01-Rev 1	Installation Wide	Draft Final Background Report-Installation Wide
No hard copy doc	285	Redstone Arsenal Basic Information Maps	EPW-EQ-IR	Mar-01	Installation Wide	Information Maps

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
286	286	Redstone Arsenal 2001 Installation Action Plan	EPW-EQ-IR	Mar-01	Installation Wide	Installation-Wide Installation Action Plan
No hard copy	287-VHS tapes (2)	OU-5 Industrial Sewer Lines Videos	IT Corp	Mar-01	OU-Wide	Sewer Line Videos
No hard copy	288	CD of the posters for the Redstone Arsenal Public Information Meeting and Open House held at the Sparkman Center on May 22, 2001	IT Corp	May-01	Installation Wide	CD of Public Meeting Posters
289	289	Final Proposed Plan Fact Sheet for the Inactive Closed Construction Debris Rubble Fill (RSA-59), OU-6	IT Corp	Jan-01	RSA-59	Final Fact Sheet
All hardcopy documents dates after Jun 01 will be labeled as Final instead of Draft Final if approved by regulator	290	Final Work Plan for Groundwater Treatment Plant Modifications at RSA-142	IT Corp	Jun-01	RSA-142	Final Work Plan
291	291	Historic Properties Report-Final Report July 1984	Building Technology Incorporated	Jul-84		Properties Report
No hard copy	292	TVA Permit for Fence Work	TVA	Jan-01	OU-15	Permit for Fence Work
293	293	Infiltration/Inflow Analysis for Plant No. 4 Sewer System	Barge, Waggoner, Sumner & Cannon	Dec-79	Plant No. 4 Subsystems: 5, 6, 7, 7A, 8, 9, and 10	Results of the Study
294	294	Environmental Resource Document	CH2M Hill	Jun-96	Marshall Space Flight Center	Environmental Resource Document
No hard copy	295	Slide Presentation of October 23, 2001 Public Meeting	IT Corp	Oct-01	OU-10	CD of OU-10 Presentation from Public Meeting
296	296	Real Property Master Plan Land Use Analysis	Parsons	Apr-99	Installation Wide	Real Property Master Plan
No hard copy	297	Slide Presentation of May 22, 2001 Public Meeting	IT Corp	May-01	Sitewide-Karst	CD of Karst Presentation from Public Meeing
No hard copy	298	CD of the posters for the Redstone Arsenal Public Information Meeting and Open House held October 23, 2001	IT Corp	Oct-01	OU-10	CD of Public Meeting Posters
299	299	Final Exit Pathway Monitoring Well Installation Work Plan	IT Corp	Apr-03	Installation Wide	Work Plan for Exit Pathway Monitoring Wells
300	300	Redstone Arsenal 2002 Installation Action Plan	Engineering & Environment, Inc.	Feb-02	Installation Wide	Installation-Wide Installation Action Plan
301	301	Summary of Findings and Recommendations for Decision for the Former Stauffer Chemical Company Plant (MSFC-55) and the Surface Drainage Ditch and Infiltraton Area Near Building 4241 (MSFC-65)	IT Corp	Aug-00	MSFC-55/65	Summary of Findings
302	302	Huntsville DDT Remedial Action Huntsville Spring Branch Indian Creek Long-Term Monitoring Program Annual Report No. 14	Olin Corporation	Feb-02	Huntsville Spring Branch Indian Creek	Annual report
303	303	Draft Final Site Specific Safety and Health Plan for the Remedial Investigation at OU-10 sites	IT Corp	Jul-01	OU-10 sites	Safety and Health Plan
CD Only	304	Redstone Arsenal Natural Resources Management Plan	RASA	May-02		

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
305	305	Redstone Arsenal Implementation Plan, FY 2002	IT/Shaw Corp	Jun-02	Installation Wide	Installation Implementation Plan
306	No CD	Treatability Study Quarterly Monitoring Report January 2001-March 2001, OU-10, RSA-95/96, Groundwater Recovery and Treatment System	IT/Shaw Corp	Jun-01	95/96	Quarterly Monitoring Report
307	No CD	Treatability Study Quarterly Monitoring Report January 2001-March 2001, OU-10, RSA-142, Groundwater Recovery and Treatment System	IT/Shaw Corp	Jul-01	142	Quarterly Monitoring Report
308	No CD	Treatability Study Quarterly Monitoring Report April 2001-June 2001, OU-10, RSA-95/96, Groundwater Recovery and Treatment System	IT/Shaw Corp	Oct-01	95/96	Quarterly Monitoring Report
309	No CD	Treatabilty Study Quarterly Monitoring Report April 2001-June 2001, OU-10, RSA-142, Groundwater Recovery and Treatment System	IT/Shaw Corp	Nov-01	142	Quarterly Monitoring Report
310	No CD	Treatability Study Quarterly Monitoring Report July 2001-September 2001, OU-10, RSA-95/96 Groundwater Recovery and Treatment System	IT/Shaw Corp	Jan-02	95/96	Quarterly Monitoring Report
311	No CD	Treatability Study Quarterly Monitoring Report July 2001-September 2001, OU-10, RSA-142 Groundwater Recovery and Treatment System	IT/Shaw Corp	Feb-02	142	Quarterly Monitoring Report
312	No CD	Treatability Study Quarterly Monitoring Report October 2001-December 2001, OU-10, RSA-95/96, Groundwater Recovery and Treatment System	IT/Shaw Corp	Apr-02	95/96	Quarterly Monitoring Report
313	No CD	Treatability Study Quarterly Monitoring Report October 2001-December 2001, OU-10, RSA-142, Groundwater Recovery and Treatment System	IT/Shaw Corp	Apr-02	142	Quarterly Monitoring Report
314	No CD	Engineering and Construction Cost Evaluation for Treating Groundwater from RSA-142, OU-10	IT	Sep-00	142	Engineering and Construction Cost Evaluation
315	No CD	Air Stripper Test Summary and Recommendations for RSA-95/96 and RSA-142 Groundwater Treatment Plants	IT	Apr-01	95/96 & 142	Air Stripper Test Summary
316	306	Closed, Transferring and Transferred Range/Site Inventory Report	Malcolm Pirnie	Sep-02	Installation Wide	Inventory Report
317	No CD	Final Project Report Remediation of the Basement Area of Building 5681	OHM Corp.	Jun-92	Building 5681	Project Report
318	No CD	Working File and Sampling Data for Building 5681	Army	Jun-96	Building 5681	Working File
319	No CD	RCRA Part B Permit Submittal for the Hazardous Waste Storage Area	Vista Technologies	Dec-96	RCRA	Part B Permit
320	No CD	Interim Record of Decision Closed Sanitary and Industrial Landfill RSA-55/54, OU-6	IT	May-98	54/55	Record of Decision
321	No CD	RSA OU-6A MSFC-74 Secondary Site Investigation Report	COE, Savannah	Jun-98	MSFC-74	Investigation report
322	No CD	Technical memorandum for Health Effects Assessment for Ammonium Perchlorate	IT	Dec-00		Technical Memorandum
323	No CD	Long-Term Groundwater Monitoring Report for RSA-10-July 1999 Sampling Event	COE, Savannah	Dec-00	10	LTM Report
324R	No CD	Geophysical Investigation Plan Sites RSA-71, RSA-72, RSA-73, and RSA-74	COE, Mobile District	Jan-01	RCRA	Investigation Plan

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
325	No CD	Interim Remedial Action Quarterly Monitoring Report May 2000-December 2000 RSA-96/96 Groundwater Recovery and Treatment System	IT	May-01	95/96	Monitoring Report
326	No CD	Screening Remedial Investigation and Baseline Risk Assessment	COE, Savannah	May-01	OU-2 sites	Risk Assessment
327		Site-Specific Safety and Health Plan Pre-Corrective Action Sampling Activities RSA-143, Underground Storage Tank Spill Site	IT/Shaw Corp	Sep-02	143	Safety and Health Plan
328	No CD	Tech Escort Detachment Activities	Tech Escort	Jan-48-Mar 49	Installation Wide	Detachment Activities
329	No CD	Rehabilitation of Industrial Sewerage System in Plant Areas 1 and 2.	Office of Post Engineer	Aug-53	Sewerage System	Letter, Map and Photos
330		Final Seismic Surveys OU-18, OU-5, OU-6, OU-7, OU-14 Work Plan and Safety and Health Plan Addendum for Seismic Surveys at OU-5, -6, -7, -14, and -18	Shaw	Apr-03	Site-wide	Seismic Surveys
331	No CD	Redstone Arsenal Project Review Meeting	IT	Feb-02		Project Review Meeting
332	No CD	Treatability Study Quarterly Monitoring Report May 2000-December 2000, OU-10 RSA-146 Treatment Plant #2	Shaw	Oct-02	RSA-146	Treatability Study
333		Final Design Basis Report for the RSA-146 Treatment Plant #2 for the Treatability Study at OU-10	Shaw	Oct-02	RSA-146	Design Basis Report
No hard copy	307	Environmental Baseline Study Southern Bypass Route	EMR	Dec-02		Baseline Study
334	308	Technical and Business Proposal Central RSA Dye Trace Studies and Seismic Surveys, Perchlorate Treatability Study, Basewide Spring Evaluation Continuous Surface Water and Groundwater Monitoring, and OU-10 Remedial Investigation	Shaw	Dec-01		Technical and Business Proposal
335	308	Technical and Business Proposal CERCLA Investigation	Shaw	Sep-02	Installation Wide	Technical and Business Proposal
336		Activities Supporting Attempt to form a Restoration Advisory Board	IRP	Mar-00		RAB
337	310	History of Huntsville Arsenal July 1941-August 1945, Volumes I thru III	Army	1941-45	Installation Wide	Arsenal History
338	311	The Redstone Arsenal Complex in the Pre-Missile Era	Army	1941-49	Installation Wide	Arsenal History
339	No CD	War Department Construction Division Specifications for Exhaust Louvers for Incendiary Bomb Plant	Whitman, Requardt & Smith Engineers	Mar-42	Installation Wide	Arsenal History
340	No CD	Redstone Arsenal Summarized Building Data & Maps	Army	Mar-54		Map
341	No CD	Master Plan Basic Information Maps	Army	Sep-75	Installation Wide	Information Maps
342	No CD	Draft Site Specific Safety and Health Plan for Rapid Response-Remedial Action in Basement Area of Bldg. 5681	COE-Omaha District	Sep-91	Building 5681	Safety and Health Plan
343	No CD	Work Plan for Remedial Action Basement Area of Bldg. 5681	COE-Omaha District	Sep-91	Building 5681	Work Plan for RI
344	No CD	Revised Final Work Plan to Prepare Baseline Risk Assessments at 16 SWMUs	COE-Huntsville	Sep-94	16 SWMUs	Work Plan
345	No CD	Final Work Plan to Prepare Feasibility Studies at RSA Unit1, Unit 2, and various sites in Unit 3.	Environmental Science & Engineering, Inc.	Sep-94	Units1-3	Work Plan
346	No CD	Group X4B(u) Site Characterization Report (RSA-66 and RSA-68)	Parsons	Jun-97	RSA-66 & 68	Characterization Report
347	No CD	Huntsville/Redstone Arsenal Document Research Project	PHR Environmental Consultants	May-99	Installation Wide	Research Project
348	No CD	Huntsville DDT Remedial Action	Olin	Feb-01	Huntsville Spring Branch Indian Creek	Remedial Action

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
349	No CD	Safety Submission Volumes I & II, RSA-14	Foster Wheeler	Aug-02	RSA-114	Safety Submission
350	No CD	Construction Report for the RSA-146 Treatment Plant #2 for the Treatability Study at OU-10	IT Corp	Oct-02	RSA-146	Construction Report
CD Only	312	OU-10 Public Meeting photos	IT Corp	Sep-99	OU-10	Public Meeting Photos
CD Only	313	Redstone Arsenal OU-10 Poster Session	IT Corp	Sep-99	OU-10	Public Meeting Poster Session
351	No CD	White Paper Review and Reevaluation of Human Health Risk Assessment; Results and Discussion of Target Organ Analysis and Comparison to Background RSA-99, Former Plating Shop, OU-10	IT Corp	Aug-00	RSA-99	Human Health Risk Assessment
352	No CD	Operation and Maintenance Manual Groundwater Treatment System at RSA-13, Volumes1 & 2	IT Corp	Aug-00	RSA-13	Operation & Maintenance Manual
353	No CD	SVE Operation and Monitoring Report For RSA-14 Northern Contaminated Waste Burn Trench January 1999 to December 31, 1999	IT Corp	Nov-00	RSA-14	Operation & Monitoring Report
354	No CD	Time Critical Removal Action Construction Report RSA-56 Closed Arsenic Waste Ponds and RSA-139 Former Arsenic Trichloride Manufacturing and Disposal Area OU-6B	IT Corp	Jun-01	RSA-56, RSA-139	TCRA Construction Report
355		Redstone Arsenal Complex Chronology Part I: The Pre-Missile Era (1941-49)	Army		Installation Wide	Arsenal History
356		Redstone Arsenal Complex Chronology Part II: Nerve Center of Army Missilery, 1950-62, Section A: The RSA Era (1950-55)	Army		Installation Wide	Arsenal History
357		Redstone Arsenal Complex Chronology Part II: Nerve Center of Army Missilery, 1950-62, Section B: The ABMA/AOMC Era (1956-62)	Army		Installation Wide	Arsenal History
358		Redstone Arsenal Fact Sheet Issue 13	Shaw	Feb-03	Installation Wide	Fact Sheet #13
359		Draft Work Plan for Confirmatory Sampling Activities	Redstone Arsenal	Sep-98	RCRA	Work Plan
360		Redstone Arsenal OU-6A MSFC-74, Secondary Site Investigation Report	COE-Savannah	Oct-98	MSFC-74	Site Investigation Report
361		Redstone Arsenal OU-6A Ecological Risk Assessment for OU6A	COE-Savannah	Mar-99	OU-6A	Ecological Risk Assessment
362		Redstone Arsenal RSA-10 Remedial Investigation Feasibility Study	COE-Savannah	May-96	RSA-10	Sampling and Analysis Plan
363		Redstone Arsenal RSA-10 Long-Term Pumping Test Summary Report June-1996-August 1999	COE-Savannah	Sep-99	RSA-10	Pump Test
364		Final Groundwater Monitoring Plan for RSA-10	ICF Kaiser	May-98	RSA-10	Monitoring Plan
365		Permit Application for Class V Underground Injection Control (UIC) Permit Application for Site RSA-143, OU-1	Shaw	Mar-03	RSA-143	Permit Application
366		Installation Action Plan for RSA	Shaw	Mar-03	Installation Wide	IAP
367		Redstone Arsenal RSA-143 (OU-1) Technical memorandum for OU-1 Groundwater Contaminant Plume Source Delineation	COE-Savannah	Mar-00	RSA-143	Technical Memorandum
368		U.S. Army Active/Inactive Range Inventory	AMC	Jul-01	Installation Wide	Range Inventory
369		Final Central Redstone Arsenal (OU-5, 6, 7, 18) Dye Trace Study Field Sampling and Analysis Plan and Safety and Health Plan Addendum	Shaw	Jan-02		Dye Trace Study

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
370		Field Sampling and Analysis Plan RSA-10/OU6A Long-Term Groundwater Monitoring Program	IT	Oct-01	RSA-10	Sampling and Analysis Plan
371		Alabama Risk-Based Corrective Action Plan OU-1, RSA-143	IT	Jun-00	RSA-143	Corrective Action Plan
372		Final Time Critical Removal Action Close Out Report Fencing and Trench Marker Installation, Select Sites in OU-4 through 8, 12, 15, and 17	Shaw	May-03		Removal Action
373		Redstone Arsenal RSA-10 Remedial Investigation Feasibility Study	COE-Savannah	Feb-99	RSA-10	RI/FS
374		Redstone Arsenal Environmental Site Access Control Program	US Army Garrison	May-03	Installation Wide	Site Access Control
	CD only	Redstone Arsenal World War II Resource Study	New South Associates	Apr-03	Installation Wide	Resource Study
375		Final Site-wide Karst Hydrogeologic Investigation, Phase I Report of Findings	Shaw	Jun-03	Installation Wide	Report of Findings
376		Supporting Backup for DODIG Audit of FY02 Environmental Liabilities of Select Sites	Shaw	Jul-03	Installation Wide	DODIG Audit
	CD only	Redstone Arsenal Program Review		Aug-03	Installation Wide	Program Review
377		Group X4B Site Characterization Report (RSA 53-60).	Parsons	May-97	RSA-53 &-60	Characterization Report
378		Interim Record of Decision at RSA-99, Former Plating Shop, Building 7614, OU-10	IT	Dec-98	RSA-99	IROD
379		Focused Feasibility Study Former Liquid Caustic Manufacturing Plant, RSA-117	IT	Mar-99	RSA-117	Feasibility Study
380		Sampling and Analysis Plan OU-14 Groundwater Extraction and Treatment System (RSA-13) and Soil Vapor Extraction and Treatment System (RSA-14)	IT	Oct-99	RSA-13 & -14	Sampling and Analysis Plan
381		Site Inspection Report for Redstone Arsenal Site Inspections Project Solid Waste Management Units, RSA-8, -9, -11 (Group C1), RSA-45 (Group L8), and RSA-82 (Group L14)	SAIC	Oct-96	RSA-8, 9, 11, 45, and 82	Site Inspection Report
382		Final Site-Specific Health and Safety Plan RSA-122 Phase II Remedial Investigation, Dismantled Lewisite Manufacturing Plants Site	Shaw	Sep-03	RSA-122	Safety & Health Plan
383		Final Site-Specific Safety and Health Plan Attachment, Remedial Investigation at MSFC-2.	Shaw	Sep-03	MSFC-2	Safety & Health Plan
384		Final Closeout Report Non-Time Critical Removal Action at RSA-49, Cap Installation Over the Former Arsenic Ponds, OU-5	Shaw	Sep-03	RSA-49	Non TCRA
385		Final Site-Specific Safety and Health Plan Supplemental Remedial Investigation at RSA-53 and RSA-60, OU-6A	Shaw	Sep-03	RSA-53 & -60	SRI
386		Final Supplemental Information Relevant to Fact Sheet 20 for Updating the Administrative Record File for Time-Critical Removal Actions, Non-Time-Critical Removal Actions, and Treatability Studies at RSA	Shaw	Oct-03	Installation Wide	Fact Sheet #20
387		Final Site-Specific Safety and Health Plan Attachment for Corrective Action Activities RSA-143, Underground Storage Tank Spill Site	Shaw	Oct-03	RSA-143	Safety and Health Plan
388		Land Use Control Memorandum of Agreement at RSA.	EPA/ADEM/RSA	May-00	Installation Wide	MOA

DOCUMENT #	CD#	TITLE	AUTHOR	DATE	SITES	GENERAL DESCRIPTION
	CD only	Presentation Posters Redstone Arsenal Public Meeting 23 October 2003	Shaw	Oct-03	Installation Wide	Presentation Posters
389		Finding of Suitability to Lease, RSA Rocket Engine Facility North Plant	RSA	Nov-97	North Plant	Finding of Suitability to Lease
390		Work-to-Date Summaries Multiple Sites, April-June 2002 November 2002 May-June 2003	Shaw	Oct-03	Multiple Sites	Work-to-Date Summaries
391		Final Methodology for the Comparison of Site and Background Data	Shaw	Nov-03	Installation Wide	Methodology Report
392		Final Site-Specific Safety and Health Plan for the Remedial Investigation at OU-10 Sites.	Shaw	Dec-03	Site-wide	Safety and Health Plan
393		Decision Document for RSA-143, Underground Storage Tank Spill Site	DES	May-03	RSA-143	Decision Document
394		Final Treatability Study Technical Work Plan for Groundwater and Soil at OU-10	Shaw	Jan-04	OU-10	Work Plan
395		Final Base-wide Spring/Seep Sampling Plan and Health and Safety Plan Addendum	Shaw	Jan-04	Installation Wide	Sampling Plan
396		Final Site-Specific Safety and Health Plan Supplemental Remedial Investigation at RSA-10, OU-6A	Shaw	Jan-04	RSA-10	Safety and Health Plan
397		Final Activity Specific Safety and Health Plan, Surface Water and Sediment Background Study	Shaw	Jan-04	Installation Wide	Background Study
398	No CD	NASA Waste Study 1966	NASA	Feb-66	NASA	Waste Study
399	No CD	Groundwater Quality Assessment Report for 4740 WPCF Volume I	ERC	Jun-91	NASA	Assessment Report
400		Final Issuance of Modification No. 1 AHWMMA Hazardous Waste Storage/SWMU Corrective Action/Subpart X Permit	ADEM	Sep-03	RCRA	Subpart X Permit